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ARCHITECTURAL MAGAZINE,
 AND
JOURNAL
 OF IMPROVEMENT IN
ARCHITECTURE, BUILDING, AND FURNISHING,
 AND IN THE VARIOUS ARTS AND TRADES
 CONNECTED THEREWITH.



CONDUCTED BY J. C. LOUDON, F.L.S. ZS. &c.
 AUTHOR OF THE ENCYCLOPEDIA OF COTTAGE, FARM, AND VILLA ARCHITECTURE
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THE ARCHITECTURAL MAGAZINE.

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ORIGINAL COMMUNICATIONS.

ART. I. *On the Use of Allegory in Architecture.* Translated from the French of M. QUATREMÈRE DE QUINCY. By P.

THE word Allegory, at first sight, does not appear to relate to architecture; for, although the public buildings of all ages and countries are covered with emblems and allegorical figures, still they must be considered as belonging to sculpture, or as ornaments, rather than as component parts of the buildings; and they are as completely independent of architecture as that art is of them. Allegory, in fact, belongs only to those arts which are direct imitations of nature; and it consists in making the forms of natural objects express abstract ideas. Notwithstanding this, though architecture is not an art of imitation, there are some cases in which it has been applied to Allegory; though, as the ideas susceptible of architectural expression are as few as the figures and signs that compose its language, instances of this kind are of rare occurrence.

One genuine architectural allegory was to be met with in the Temples of Virtue and Honour, which were built by Marcellus at Rome, and the situation of which conveyed not only an emblematic meaning, but a moral lesson. Marcellus, having wished to dedicate the riches he brought from Sicily, was prevented from carrying his original design into execution by the high priest (whom he had, nevertheless, previously endeavoured to propitiate), under the pretext that one temple could not hold both divinities. He therefore built two, so arranged side by side, that it was necessary to pass through the Temple of Virtue, in order to reach that of Honour: wishing to make it understood, that by virtue alone honour can be attained. These temples were situated near the gate Capena.

Other temples were likewise constructed to convey allegorical ideas: such as the Temple of Vesta built by Romulus, and the one dedicated to the same goddess at Mantinea; the plan of both being derived from the figure of a burning hearth. A cir-

cular temple, dedicated to the Sun, in Thrace, had for its model the disk of that luminary. A symbolic meaning is also discoverable in other antique edifices; such as in the portico of Olympia, dedicated to the seven liberal arts; where, according to Plutarch, any verses spoken or recited were repeated seven different times by an echo. A temple of Mercury, represented on a medal of the Emperor Aurelian, may be admitted into this class. This edifice, instead of being supported by columns, rested upon Hermes, or Termini, as they are now called. Upon its pediment were represented a dog, a cock, and a tongue; figures which signify fidelity, alertness, and eloquence.

Such are examples of the kind of allegory of which architecture is susceptible. The monuments of Egyptian art, the construction of which was directed by the priests, presented, perhaps, similar symbols to the mind, and were once intelligible to every body. Their meaning is now lost, but may be recovered, as well as the art of deciphering their hieroglyphics. This grand method of describing thoughts, and employing immense characters to fix them for ever, might well belong to the national genius of Egypt.

From examples like these, some people of a systematic spirit have imagined that all architecture might be reduced to an allegory, and clothed in an emblematic veil. According to them, architecture having sprung, like other arts, from religious worship, must have participated in those mysterious emblems, which they consider to have been invented only to hide or preserve the precious deposit of truths of all kinds. They do not see in a pediment merely the representation of a roof, or the roof itself; but, by the chance resemblance of a necessary shape to a geometrical figure, the pediment becomes in their eyes a mysterious triangle, emblematic of Divinity. Columns, to them, are no longer supports required to sustain architraves and superstructures: they fancy they owe their origin to sacrificial stones, to Hermes, to symbols, to the first statues of the gods, &c. In the like manner, pedestals become altars; and friezes, entablatures, modillions, cornices, and capitals, which have been decorated with allegorical designs, allegories in themselves.

Thus, by an absurd transposition of simple ideas, and by neglecting to distinguish between accidental and essential parts, architecture becomes totally changed, and the result produced is mistaken for the principle producing it. These strange systems, which scarcely merit refutation, arise from the ignorant and false ideas that are entertained concerning Allegory, of which there are two distinct kinds. The first of these sprang up in the early ages of society, from the figurative mode of speaking and writing in those times, and which only appears mysterious at the present day, because the mode of speaking and

writing is changed. The other kind appertains to the taste men have for fiction, and, in this respect, differs essentially from the first; which, although now the least intelligible, is nevertheless the truest, being only a lively and simple representation of objects, affections, and sensations, expressed in a striking manner. This second species, which we can readily understand, because it is more modern, first arose in cities and in civilised society; thereby proving that this kind of allegory could never have given birth to architecture. This last being quite a necessary art, it is certain that the idea of making a shelter must have preceded that of making a symbol, or mystery. It is true that allegory was afterwards applied, more or less happily, to architecture; first in the shape of hieroglyphics, and afterwards of sculpture; but these were only details and decorations; and were the finishing touches to, instead of being the origin of, the art.

To sculpture and painting Allegory properly belongs; and, though architects can never bestow too much study and research in endeavouring to discover its spirit and meaning in antique ornaments, so as to avoid those commonplace adaptations, those cold, insignificant, and misplaced allusions, which render edificial decoration an enigma to the generality of persons, and a puerile sport to the few that understand its meaning, they should always remember that, like all other ornaments, it is, in most cases, a mere dress in which to clothe the figure they have designed, which can be cast off or changed at pleasure; and not a component part of the figure itself, which cannot be altered, in the slightest degree, without destroying the unity of the whole.

ART. II. *On the Rise, Progress, and present State of Architecture in North America.* From the *North American Review* for October, 1836.

WE have seen no article on the architecture of North America at all to be compared with the following. It gives so clear an idea of the kind of public buildings which already exists in that country, and of the improvements which are introduced in those now going forward there, that we are sure our readers will thank us for having laid it before them. The book which gave rise to the review is entitled *The American Builder's General Price Book and Estimator; deduced from extensive Experience in the Art of Building*: by James Gallier, Architect, Boston.

THE rules of architecture are, probably, violated more frequently, in practice, than those of the other fine arts; and in no civilised country are they less regarded than in the United States. In this art, we may fairly claim originality. There may be no American literature, painting, sculpture, but

there certainly is American architecture. We have columns which mock at the narrow limits of the Grecian orders; domes whose proportions are more stupendous, if not more vast, than the marvel of Angelo; ornaments which it would baffle the genius of Palladio to class; and "shingle palaces" that rival pandemonium itself, rising "like an exhalation,"

"Built like a temple, where pilasters round
Are set, and Doric pillars overlaid."

Thus far the art, with us, is in a very chaotic state, however. There are certain causes existing here to oppose its progress, which have not been found in other countries, and which must always exert a considerable influence upon architecture in the United States. Still there is room for great improvement; and we propose, in this article, to speak of some of our principal edifices, public and private, as specimens of art, and to offer some hints with regard to the forms which architecture would naturally assume in our country. We shall express our opinions with frankness, as in no other way could we contribute any thing towards an object which appears to us of great public importance; and we do this with the less scruple, as, in the cases where we are compelled to find most fault, we are wholly ignorant whose are the works on which we are animadverting.

Regular architecture has appeared under two general forms; the Grecian, including the round arch and the dome, and the Gothic, or pointed arch style. Each of these forms owes its origin and perfection to a deep and enthusiastic sentiment, which pervaded society, and constituted the spirit of the age. Classic religion gave birth to Grecian architecture; the spirit of the Crusades called the Gothic style into being. In like manner, we shall find that the spirit of the age was the origin of American architecture in its genuine form. The settlement of New England was the result of a deep sentiment, with which the hearts of our pilgrim fathers were filled, the stern spirit of puritanism. This displayed itself in every possible form, but in none more strikingly than in the architecture. Houses of worship, which they disdained to call churches, and which still bear universally the name of meeting-houses, were erected almost before the first rude dwellings were completed; and the style of architecture, if, indeed, it deserves the appellation, arrived at its perfection in less than a century after the first settlement of the country. The simplest form of the meeting-house is much like that of a large barn, with gable ends. There are doors on three sides; each one having a small porch, or square tower, rising as high as the eaves of the building, to contain a flight of stairs conducting to the gallery. No cornice, no ornament of any sort, graces the exterior; but the uniformity of the sides and extremities of the building is broken by the unaccountable number of windows with which our ancestors saw fit to adorn the sacred edifice. We speak within bounds, when we say that the number of windows, in an old-fashioned meeting-house of 70 ft. by 50 ft., is never less than forty. Around three sides of the interior runs a gallery, supported upon columns of an unknown order. The ceiling is plastered; but the huge rafters, which project from the walls about 6 ft. below the eaves, and help to support the roof, are not concealed. On the fourth side, and directly opposite the middle of the long gallery, stands the pulpit, upon which the whole magnificence of architecture that the age could boast of was lavished. The fluted pilasters, with their wondrous capitals; the heavy balustrade of the staircase; the graceful elevation of the desk; the superb bow window, in whose presence the other lesser lights seem to withdraw, and hide their diminished forms; and, more than all, the majestic sounding-board, which canopied the whole, heavy with mouldings, and rising in the centre into a boss most marvellously sculptured; all these formed an assemblage of magnificent objects, which seemed to mock at the puritanical simplicity of the remaining parts of the edifice. If the ambition of the builders was lofty enough for a steeple, one of the gable porches was made to rise con-

siderably above the ridge-pole. Upon this was erected the belfry, a structure which strongly resembles the top of an urn, standing upon six or eight legs. From the belfry a slender spire shoots up, terminated with a gilt vane.

There was, however, another form of the steepled meeting-house, which, we believe, is of earlier date than the one last described. This sort of edifice, of which very few now remain, is square; the four sides of the roof meet in a point over the centre of the building, and from this point springs the steeple, consisting of a belfry and spire. We must not forget one remarkable contrivance in our early churches, the arrangement of the pew seats. These were made with hinges, so that in prayer-time they might be raised up, and allow the occupants to lean against the back of the pew; at the close of the prayer they were slammed down with a noise like the broadside of a frigate, and served as a warning to all the backsliders in the village, who were remiss in their attendance at meeting.

Such were the early houses of worship in our land. But few of them remain, and these are rapidly disappearing before the spirit of improvement. Yet we should be sorry to lose all traces of them; for not even the Gothic minster, with all its splendours — the tall windows of stained glass, the lofty arches and vaults, crowded with prophets, martyrs, and saints; the canopied tombs, where repose in solemn marble the mailed knights and the mitred abbots; the carved stalls of the choir, where kings are proud to have their seats, — is more characteristic of the spirit of the crusades, than the old meeting-house of the puritanical temper of our forefathers. This spirit is still a strong element in the New England character, but it is much modified and softened. Commerce and politics have now become as much the objects of thought with us as religion, which so exclusively occupied our forefathers; and our commercial and political edifices rival our churches in size and cost. Every capital of the Union has its state-house, which makes some pretension, at least, to architectural elegance. Every commercial city, and every town of two or three thousand inhabitants, has one or more banking-houses, which are generally as much decorated as the resources of the company will allow. Meantime, the Grecian and Gothic styles, neither of which is discoverable in the earlier architecture of the country, are beginning to appear in every village.

The most costly, and, undoubtedly, the noblest, edifice in the United States is the Capitol at Washington. There is one great fault in its construction, which is not, however, to be attributed to the artist who designed the building: this is the centre dome, which is very heavy, ill proportioned, and out of place. By the original design, it had the same curve as the domes over the wings, which are low and very elegant. The plan was partially changed for the centre dome, and it now rises with a high and very ugly curve, from a base not half large enough to support it. The Capitol is built of a stone commonly called Potomac freestone, of a rich brown colour. A more beautiful material we have never seen; but, unfortunately, the parts which were completed, when Washington was taken in the late war, were so begrimed with smoke from the burning of the edifice, that it was found necessary, upon repairing and completing it, to paint the whole; so that, at a short distance, one would suppose it to be constructed of white marble. The interior is simple and elegant. The Rotunda, which is under the large dome, is probably the finest room in America. It would, undoubtedly, add greatly to its beauty, as well as to that of the Senate Chamber and the Hall of Representatives, if the ceilings were painted in fresco. But this kind of decoration has not yet come into use amongst us.

Philadelphia abounds more in good architecture than any city of the Union, notwithstanding that the tall column in Baltimore, and the little trophy of marble near Barnum's hotel, have gained for the latter the proud name of the Monumental City. The United States Bank, the Mint, and the Exchange are the finest specimens of architecture which Philadelphia contains. The very material of which they are composed, white marble, gives them an im-

posing appearance; and the style of architecture is suited to the material. The Bank is, undoubtedly, the most faultless monument of its size in the United States. It is of the purest Doric, classic in its proportions, and severely chaste and simple. Indeed, considering the place in which it stands, in the midst of a populous city, and in close neighbourhood to other buildings, a higher degree of ornament would not have been amiss: if the frieze and pediments had been adorned with bas-reliefs, a good effect would have been produced. It is much to be regretted, that an edifice of so much architectural merit should be so badly placed. It stands in a small area, hemmed in by buildings on every side, so that it is impossible to obtain a distinct view of the whole. Now, the very nature of the Doric order requires that it should be exhibited in an open or commanding situation. The idea which it is intended to convey is that of duration. The massive columns, the vast blocks which rest upon them, and, more than all, the heavy proportions of the Doric, seem to bid defiance to the elements and to time itself. Could the very foundations of the earth assume a harmonious form, and rear themselves into symmetry, it seems as if they must create this order, which, more than any other, combines strength and durability with beauty of proportion. Hence, Doric monuments should always stand in open and exposed places, and not seem to court the shelter of other edifices. They should appear to brave the elements, and invite the storm. The air should circulate freely around, and the clear open sky should alone encompass them. The Greeks acted upon this principle, when they built the Parthenon on the Acropolis, and the far-famed Hesperian temples on the plain of Pæstum. One may easily imagine how much the effect produced by the Bank in Philadelphia would be heightened, if it had been erected on the summit of Fair Mount, instead of the confined spot in which it stands. "The President, Directors, and Company" probably would not thank us for this suggestion; but we remind them that we are speaking only in an architectural sense.

In speaking of the United States Bank, we cannot avoid noticing the peculiar aptness of the Grecian architecture for banking-houses. The simplicity of the form, so well adapted to strength and durability; the plain walls, with the heavy entablature, not requiring the relief of windows; the broad steps which invite the crowd; the lofty porticoes which overhang them; the quiet cella, where everlasting silence prevails, form a befitting temple for the worship of the blind goddess. And this style of building has been found to answer the purpose so well, that it prevails throughout the country, wherever an edifice is erected expressly for a banking-house.

The architecture of New York is truly meagre; but, after being at a stand for many years, is at last in a fair way to be improved. The Custom-House, judging from the plans, will be a superb edifice. It is to be of one of the higher Grecian orders, with fluted columns, and a pediment at each extremity; the whole of white marble. The City Hall has hitherto been the most remarkable building in the city. It abounds in small ornaments, and, being of white marble, which contrasts pleasingly with the green trees of the Park, makes a pretty appearance; but, as a whole, it is very deficient in character, and fails to produce the effect which should be expected from its size and cost. The new building for the University, which is of the Gothic order, has some striking merits; and, though far from perfect, is still very interesting as the first remarkable specimen of a style which has been but lately introduced into this country. Thus far the Gothic order, where it has appeared in the United States, has been almost exclusively appropriated to churches. Wherever it has been found necessary to erect large secular edifices, they have either been entirely destitute of ornament, and belonging to no order of architecture, or slightly adorned with Grecian cornices and pilasters. Instances of this architecture appear all over the country; but we do not recollect any that are more illustrative of what we mean than most of the college buildings at Cambridge, New England. We would cite these as very perfect specimens of no known order of architecture; vast brick barns, destitute alike

of symmetry, ornament, and taste; and, with all their plain and uncouth proportions, there is a sort of horrible regularity and squareness about them, which heightens their deformity. Four of these edifices are guiltless of any attempt at elegance of architecture, and, making no pretensions, perhaps hardly deserve to be noticed. But what shall we say of the stone edifice, which insults us with its long piazza, and its wooden Ionic pilasters, and the entablature, which extends part way across the front? The proportions of this wonderful building are about 100 ft. by 40 ft. or 50 ft.; at the ends, it is three stories high with basement rooms; the sides are partly two stories and partly three stories high, the great expanse of wall being somewhat relieved by the pilasters and entablature. The *chef-d'œuvre* of the whole building, however, is the piazza, or portico, which runs along part of the western side, or front. It is approached by a lofty flight of stone steps, guarded by an iron balustrade; nine columns, from 12 ft. to 15 ft. high, each of a single block of granite, and surmounted by a Tuscan capital of soap-stone, are ranged along the front of the piazza, and support a flat roof, 8 in. thick, and so light and insignificant, that it seems as if a breath of wind would blow it away. We doubt whether the world contains any other architectural abortion to be compared to this. The Gothic style admirably relieves architects from the embarrassment of combining size, convenience, and elegance in buildings intended for civil or domestic purposes. The various towers, oriel windows, and battlements, and the pointed arches, obviate the disagreeable effect which a large and unbroken expanse of wall produces, and are increased in grandeur the more the proportions of the building are magnified. The new University at New York is, on this account, vastly handsomer than any college building which we have seen in the United States. This style of architecture might, with excellent effect, be employed for any edifice which is to be large, and, at the same time, to contain a number of different rooms, varying in size. We have always thought it peculiarly appropriate to the court-houses in our large cities, which, besides the large halls for the sessions of the courts, contain numerous small rooms for offices, libraries, and other purposes. A proof of the convenience of this style is, that it has been selected in the construction of several of the larger prisons, as the one at Auburn, New York, and others. In these buildings, however, the beauty of the Gothic cannot be entirely displayed, as the windows must necessarily be small and narrow, and the florid ornaments would not be appropriate. We are happy to learn that the edifice which is about to be erected for the library at Cambridge is to be of the Gothic order.

Coming northward from New York, we cannot help noticing the State-house at New Haven; a chaste Grecian building of the temple form, surrounded by a colonnade, and forming a remarkable contrast to the uncouth buildings of the college. But let us proceed to Boston, "the Athens of America." Athens it may be; but the days of Pericles have not yet come, if we may judge from the architecture of the city, which is singularly bad. The first and most important edifice, which is seen upon approaching Boston, is the State-House. The situation is truly noble, being the most elevated in the city, and rendering the dome a conspicuous object for many miles both by land and sea. The architect of the State-House deserves great praise for his general plan. The idea was extremely good, to place on a high elevation a building of such a description, that its proportions might be at the same time lofty and grand, and which was to be surmounted by a dome. The effect of this is very striking. The dome rises above every other object, crowning the city, and seeming to give a unity and decided character to the whole. We doubt whether any other plan could have produced so good an effect at a distance, as the dome depends less, for the impression it makes, upon the detail of ornament, than any other form of building. The general idea of the architect was excellent; but the execution, though not a failure, is, on many accounts, very bad. The wings of the building are so short as to appear mean, and render the whole too small for the dome which surmounts it

This fault, however, we believe, is not to be attributed to the architect. The original plan made the wings more extensive; but they were clipped by our legislature, who could not afford to buy so much architecture. The *façade* is, certainly, handsome, but would be much improved, if the columns in the Corinthian portico were single throughout, instead of being doubled at the extremities. The great fault, however, is the dome, which is very heavy. The circular tower, or foundation, upon which it rests, should have been carried up much higher, and surrounded by a Corinthian colonnade. The same architect who planned the State-House designed, many years afterwards, a much smaller dome for the church in Lancaster, Massachusetts, the proportions of which are almost faultless. The church itself is beneath criticism; but the cupola which surmounts the tower, consisting of a circular Ionic colonnade, with open arches between the columns, and a light and elegant dome springing from it, is hardly equalled for beauty in our country. Could the same happy idea have occurred to the artist while planning the State-House, we might now have made our boast of Boston architecture. The next remarkable edifice is the Massachusetts General Hospital, some parts of which are fine. The Ionic portico in front, taken alone, is dignified and imposing; but the angle of the pediment unfortunately rises higher than the roof of the body, and thus produces an unpleasant effect. The square tower, and the dome which surmounts it, are rather handsome; as a whole, however, we consider it a failure.

We regret that there is no better instance to illustrate our remarks upon the conveniences of Gothic architecture than the Masonic Temple; an edifice which, in consequence of its pointed windows, and the small spires, which stick up like asses' ears at the front corners, claims to be Gothic. Barbarous enough it certainly is. The front belongs to the early English style; and the remainder of the building, to be in keeping with it, should be adorned with buttresses and flying buttresses, battlements, pinnacles, niches, and canopies, and a profusion of sculpture. Unfortunately, the sides of the edifice do not belong to the same age as the front; and the low-arched windows are very disagreeably contrasted with the more elegant proportions of the one in front. But criticism is wasted on such a building: the whole is bad.

The most perfect piece of architecture in Boston is the *façade* of the Tremont Theatre. The only fault we find in it is the steepness of the roof, which is too great for classical elegance. With this exception, it is uncommonly chaste and dignified, and the proportions are admirable. We should be glad to see the two niches occupied by statues, and the pediment adorned with a *bas-relief*. It is difficult to explain on paper the merits of this edifice, because they consist chiefly in the beauty of the proportions; the height of the whole, compared with its breadth, and the proportion of the upper story to the basement. One of its great beauties is the simplicity of the architecture. Upon a base of solid masonry, pierced by three arched doorways of great depth, rises a second story, containing three lofty windows, and supported by Ionic pilasters. This story is carried up so high, that the basement seems only a proper foundation for it. Above this rises the pediment, which, though too heavy, is far from being a deformity.

Another very pretty building belonging to Boston, though, probably, unknown to two thirds of the inhabitants, is the Hospital at Rainsford's Island. It is of an oblong form, entirely surrounded by a Doric portico, like the Parthenon; and, standing upon a bold rocky promontory, jutting out from the island, it makes a fine appearance when viewed from the neighbouring shores, or from the boats which pass in front.

Some of the banks in Boston are pretty, particularly a small stone edifice nearly opposite Boylston Market, the proportions of which are very good. The edifice erected in State Street, for the United States Branch Bank, is an instance of what occurs very frequently in the city, great *expense* with very little *effect*. In designing any building, some regard must be had to the place in which it is to stand. Now, it appears to us, that, as the bank in question

was to be smothered between other houses, in such a manner that Michael Angelo himself would have been puzzled to make it look well, it was of little or no consequence what the architecture should be. A plain edifice of brick or rough stone, with a *façade* but slightly ornamented, would have answered as well as any thing else. It is very evident that somebody was obliged to pay for those enormous shafts, of a single block of granite each; and it is equally evident that, as far as architecture is concerned, the money was thrown away. With the edifice, independently of the situation, we have no fault to find. If it stood upon the summit of Beacon Hill, in an open area, we doubt not it would make a beautiful appearance: at present, its beauties are lost.

These remarks lead us to the examination of another building, which, as we never saw the plan, has been an unfailing source of wonder to us, as we have watched its progress; we mean the new Court-House, which is now so nearly completed, that one can form a pretty good idea of what it is intended to be. For the benefit of those who have not looked upon this astonishing structure, we will attempt a description, though with a very faint hope of doing justice to the genius of the designer. Let the reader imagine a building so long, narrow, and high as to resemble a sheet of baker's gingerbread standing upon the edge, and he will have some notion of the outline. "I think, gentlemen," said a western friend of ours to a building committee, who were asking his opinion of an edifice of nearly the same proportions as the new Court-House, "I think, gentlemen, if you please, that if you were to turn your academy over upon the side, it would cover a good deal of land." We doubt if good-nature itself could, in conscience, say any thing more than this in praise of the Court-House. The sides of this elongated and attenuated pile are pierced by numerous windows of different sizes, some arched and some square. At each extremity is a door, above which towers a dead wall, terminated by a cornice, like that of the sides, of the simplest form. From this, the roof slopes back towards the centre. Near the eaves of each end of the building rises a broad thin chimney of stone, terminating in several small pyramids, the effect of which is very remarkable. Thus far, there is nothing in the edifice to complain of, because thus far it makes no pretence to architecture; and had the artist, or the civic committee, or whoever was concerned, been content with leaving it in this state, we should have been satisfied with having a cheap structure, whose internal arrangements answered the purpose for which they were designed. But it seems as if, after the building was planned, it was thought necessary to make a little display of taste and classical skill; and accordingly we have Grecian porticoes built against the end walls. When General Jackson and Major Downing were at the village of Downingville, the President made a speech to the people, of which the Major gives a report. "Here," says he, "the general was goin' to stop; but says I in his ear, 'You must give 'em a little Latin, Doctor.' Here he off hat again; 'E pluribus unum,' says he, 'sine qua non.' That 'll do, General," says I." Our architect's porticoes are about as appropriate to the other part of the building as the General's Latin to the speech he had been making. In themselves they are extremely beautiful. They are of the Doric order, and consist of four fluted columns, the shafts of a single block, rising above a lofty flight of steps, and surmounted by a pediment of the true Attic proportions. But they do not belong to the building: they would look just as well, and would seem as appropriate, if they stood on the opposite side of the street; they add nothing to the beauty of the edifice, because it has no beauty to add to; and they certainly do not constitute its beauty, because no one thinks of viewing them as parts of it. We should be in favour, therefore, of having them removed from their unfavourable position at the ends of the Court-House, and carefully preserved, till they can be used for some building of Grecian architecture, to which they may seem actually to belong; and we assure the architect that his fame would not be in the least diminished by the abstraction.

We have thus far avoided speaking of the churches, while noticing the public edifices of our various cities, because we wished to treat of sacred architecture separately. It assumes, in this country, a form essentially different from that which distinguishes it in Europe. Our forefathers appear to have been desirous to obliterate entirely the memory of the stately worship from which they had fled; and they studiously avoided every thing, in the construction of their houses of devotion, which might recall it. Not only is the entire form of the early meeting-house unlike that of the church, but all the interior divisions of nave, transept, and choir are utterly confounded and lost. The pulpit and communion-table are placed on the long side, that they may not remind any one of the chancel and altar; the aisles are mere alleys, running between the pews and across the building, as the case required; the long columns extending to the roof have disappeared; and all traces of the church, as it exists in Europe, are lost in the plain and puritanical meeting-houses of our ancestors. The churches which have been erected within the last half century are, with few exceptions, rather modifications of the first plain meeting-houses than imitations of the European churches. Still, the tendency has been towards the church style of building. The pulpit is now placed at the extremity of the room; the aisles begin to be distinguished; occasionally, tall columns are found, dividing the interior into aisles, and supporting the roof; and the entrance is at the front. With these changes also have been introduced the tall windows reaching to the whole height of the edifice; whereas the old houses of worship were always divided into as many as two, and sometimes even into three, stories. A much greater amount of ornament is also found upon our modern churches than was allowed to those of the last century. There is not to be found, however, in the United States, a single instance of a church built in the style of the English cathedrals, with nave and transept, and the screen, parting the choir from the nave, or the lady chapel behind the choir. One important distinction is now made, which was entirely neglected by our ancestors; namely, between churches which are to have steeples, and those which are to be built without. The latter are beginning to assume a distinct style; generally that of the oblong Grecian temple, with a projecting portico in front, supported by columns of the height of the edifice. Great improvement has, also, been made in the form of steeples wherever they appear.

The loftiest steeple in the United States, we believe, is that of Park Street Church, in Boston, which rises somewhat above 200 ft. The proportions of the steeple are good, though by some they may, perhaps, be considered too heavy; and the various divisions harmonise well. If any portion is too heavy, it is the spire, which, from its great elevation, should be extremely light. The ornaments are of the Grecian order. We should have preferred to have them of the Gothic, which the architect might have employed as appropriately, the body of the church belonging to no order whatever; but, on the whole, we regard it as an elegant structure.

One of the best proportioned steeples in our country is at Salem, in Massachusetts, the work of a native artist. The whole church is the best specimen of architecture in that city, notwithstanding the various efforts which have been made since its erection. We are not aware that it has any name; but the building will easily be recognised as the only church in Chestnut Street. The Ionic portico in front is uncommonly elegant, though simple and unpretending. Above this rises the steeple, to the height of nearly 150 ft. Its principal merit is beauty of proportion, which is not equalled in any steeple that we know of in the United States.

The lightest and most graceful steeple in Boston is in Federal Street, of the Gothic order. We believe the Federal Street Church is the first attempt at this style of architecture in Massachusetts, and one of the first in the United States. It has great faults, and, indeed, few merits except the steeple. One great defect is, dividing the building into two stories, of which the upper windows only have the pointed arch. The piers in the interior are good,

consisting of the clusters of columns with foliage. There is nothing in the form of the edifice to distinguish it as Gothic; and Grecian ornaments with round arches might have been employed with equal propriety. The same remarks apply to Grace Church, in New York, which is, also, a specimen of the early American Gothic. The windows in that building, if we remember rightly, are lofty; but they are only distinguished as Gothic by having the pointed arch. The artist seems to have forgotten that mullions, tracery, and transoms are equally characteristic of this order.

Since the erection of these churches, the Gothic order has come greatly into use, not only in cities, but throughout the country; with great faults, however, as it is not uncommon to see a church with pointed windows, and a portico supported by Grecian columns, like the Orthodox Church in Bolton, Massachusetts, and many in the western towns of New York. Buttresses are almost unknown; and as for flying buttresses, we do not believe there is an instance of them in the United States. The interior of these churches is generally still less Gothic than the outside. In very few is there any appearance of aisles; and if the gallery and pulpit are ornamented, they are quite as often Grecian as Gothic. No distinction is made in the form of the building with regard to its being of the Grecian or Gothic order; and, in general, if the ornaments were not to be applied till the body of the edifice was finished in other respects, no one could tell, unless by the pointed windows, to what style of architecture it was intended to belong. As for the richer ornaments of the florid Gothic, they are not to be found on any edifice in the country.

This style of architecture is, however, undergoing considerable improvement. Trinity Church, in Boston, is superior to any edifice in the city, of the same style, that was built before it; and we are inclined to think that the tower is the best Gothic in the United States. As a whole, the building has many faults. We especially dislike the use of two kinds of arches; the flat arch at the side windows, and the high arch in front, which belongs to a different style of Gothic. The sides of the church look bare and mean from the want of buttresses, dripstones to the windows, machicolated or open-work battlements, and other appropriate ornaments. The interior is very poor; the vast expanse of whitewashed walls, and of pine painted white, is disagreeable to the eye; the ceiling over the middle aisle is too low, and the length is not great enough for the other proportions. The interior of Grace Church is much better, though the effect is injured by the glare of white. We regard this as the nearest approach that has yet been made, in Boston, to what a Gothic interior ought to be.

The prettiest Gothic churches in our country are at Gardiner, Me., and at Hartford, Ct. Though neither of them is richly ornamented, they have both, and particularly the one at Hartford, the proportions and general form of the Gothic, and are proofs of far better taste, as well as of greater knowledge, than appears in the construction of most of our churches; and we are not aware that there are in either of them any of those gross violations of architectural rules which are so common among us.

In concluding our remarks upon Gothic churches, we will select one example for criticism, which, we believe, is more universally known than any Gothic structure in the country; the church at Cambridge, in which the annual commencement performances of the University take place. The front is the best part of the building. It has a square tower, ornamented at the corners by small octagonal towers, and having in its front a broad low-arched door, and a lofty window of the early Gothic. The belfry opens with pointed arches, above which rises the spire. Four small spires, or minarets, rise, also, from the four corners of the tower. In each side of the building, near the ends, are two doors, between shallow buttresses, which are surmounted by spires; the space over these doors is adorned by Gothic arched panels, and surmounted by a battlement. There are three windows, with high arches, and adorned with mullions and transom on the side; but there are no but-

trusses between them, and the battlement is not continued above them, which is a great fault. The form of the building is of the most awkward kind; so nearly the same in length and breadth, that the interior, after separating a few feet for the porch, is square. It is not divided by piers into aisles, nor are there any divisions in the ceiling to denote them: indeed, but for the pointed windows and the pulpit, one would never discover, from the interior, to what order the edifice was intended to belong. One of the greatest defects of the building is the roof, which is extremely uncouth and barn-like in its appearance, there being nothing to relieve the dull expanse of shingling. The space from the eaves to the ridge-pole is about the same as from the eaves to the ground; and no effort whatever has been made by the architect to conceal this deformity. The tower and spire are both too short, and have the appearance of having been cut off, and curtailed of their fair proportion. In general, the edifice looks more like a barn with a steeple to it, than any thing else.

Near by, as if to increase the hideousness of this cathedral, is the modest and beautiful little episcopal church, whose faultless proportions have so often been praised, but never imitated. We mention it, only to take the opportunity again to express the wish that it may be copied in stone; regarding it, as we do, as faultless, both externally and in the interior.

St. Paul's Church, in Boston, has undoubtedly the finest interior of any in the city. The chancel is supported by two columns of Grecian Ionic; the ceiling is arched, and elegantly paneled; the windows are lofty and arched; and the gallery extends only across the extremity opposite the pulpit. The simplicity and excellent proportion of the whole give it a solemn, grand, and even colossal, appearance. The exterior is not so good. The slope of the roof is too steep for Grecian architecture; which makes the pediment so heavy, that the Ionic columns, or piles of cheeses, as they have been called, do not seem sufficient for its support.

We cannot take leave of Boston without bestowing a word upon two abortions of ugliness which purport to be churches, fronting upon Washington Street at the South End. We cannot believe that any architect planned these monstrous edifices. Corporate bodies, it is said, have no conscience; and these buildings may possibly be the result of corporate irresponsibility: no individual of mortal race could have been atrocious enough to design them. We attempt no criticism upon them: were we to make the effort, we should be in the situation of the clergyman, who, being called to visit a dying man, after a little conversation with him, came from his chamber, declaring, with some warmth, that the man's ideas of right and wrong were so utterly perverted and confused, that he neither knew where to begin nor where to end with him. One is tempted by these horrible structures to the wickedness of wishing, that

"The Goth, the Christian, Time, War, Flood, or Fire,"

or any other means of destruction, might "deal upon" them, and relieve the street of their presence.

The remarks we have made upon the architecture of the New England churches apply equally to those of the south. Neither New York nor Philadelphia contains a church which has any claims to be called fine architecture, or which is worthy of the wealth and population of those cities. There are two in Baltimore which are better; the Unitarian and the Catholic. The former is remarkably elegant in the form and proportions of the interior, having some resemblance to the Pantheon. The Catholic Church, or Cathedral we believe it is, has the divisions of nave, transept, and chancel; and the interior is imposing, though too plain. It is of the Grecian order, with arched windows. We think the Gothic would have been more appropriate.

The ecclesiastical architecture, in our country, is in a very unsettled, ill-defined state. It has neither the stern simplicity and unpretending rudeness

of the puritanical meeting-houses, nor the grace and richness of form and ornament of European churches. It seems worth while, then, to enquire what kind of churches the religion of our country requires, and what points are to be particularly attended to in their construction.

The majority of our religious societies are of denominations corresponding to the English Protestant Dissenters; and their services require that the church should be provided with pews or seats, and should be of such a size, that the voice of the preacher may be heard with ease in every part of the building. It is also desirable that the clergyman should be seen by the whole congregation. Hence, their churches ought never to be very large, or crowded with ornament in the interior; especially should massive columns be avoided. The same remarks apply to the episcopal churches of the United States. It is not to be expected that this form of worship should be found here, attended with the same pomp and splendour as in England. There is no need of a choir in our episcopal churches; nor is the cathedral service daily chanted in them, as in the minsters of England. The Catholics of the United States are not numerous or wealthy enough to rear edifices worthy of their superb ritual; and they have, at the same time, so many models abroad for their churches, that any advice from us would seem superfluous. There are some considerations, however, which may be of service to the majority of Christians in erecting churches. In the first place, we earnestly recommend to all societies who are preparing to build, however small and insignificant their edifice is to be, to employ an architect to make a regular plan, and then to abide strictly by the plan. The plague of architects, and the destruction of symmetry and elegance in our churches, is the disposition, so universally prevalent, either to go to work without any plan, or to modify the original one. Were a committee of gentlemen, unacquainted with painting, to attempt to alter and improve one of Allston's pictures, each one adding or erasing to suit his own taste, it may easily be imagined what an effect would be produced: yet this would hardly be more absurd than the various alterations made by building committees in the plans of architects. It should be remembered that, in general, alterations must either cost more than to follow the plan, or else the beauty of the building must be sacrificed.

It is extremely desirable that our churches should be made of some more durable material than wood, of which the most of them consist. Stone or brick may be had in every part of the country. The Quincy granite is easily obtained for all towns upon or near the sea-coast, and forms a very elegant material. We like it especially rough hewn, as in Trinity Church. Granite and slate quarries abound throughout New England; besides which, there are quarries of marble and freestone, the most beautiful material for churches which we have ever seen. If the churches are composed of such durable substances, they are less expensive in the end, as they require much less repair, and, if properly built, may last for centuries. Besides this, there are associations and sentiments connected with ancient buildings, which cannot be called up by those of our own age. We have a natural reverence for antiquity. We regard an edifice over which ages have rolled with a respect we cannot feel for those of our own time. True, we Americans have but little opportunity to experience these feelings; but we are certainly not less affected with veneration for whatever antiquities we do possess, than other nations for the remains which are found among them. A peculiar sacredness, however, seems to invest ancient churches, where our forefathers have met and worshipped; where the voice of eloquence and the solemn strains of music have been heard for ages; around whose walls repose in their last sleep those friends whom the closest ties have endeared to us. We may comprehend how much the value of our sacred edifices would be increased by age, if we imagine the pilgrim fathers to have built upon the shore of Plymouth a church, no matter how rude, of sufficient strength and durability to be in preservation at this time. With what veneration should we regard such an edifice; how carefully should we protect it; how eagerly should we enter the sacred pre-

incts, hallowed by the memory of the mighty dead; with what emotions should we listen to our orators, if their eloquence were heightened by the recollections and associations which would arise in such a temple! It may be received as a truth, that, if a church be so constructed as to defy the inroads of time, every revolving year will add to its value.

The situation of a church, particularly in the country, is also to be carefully attended to. If possible, let it be placed in the midst of a grove of trees; if not, let trees be set out around it. Nothing can be less picturesque than the appearance of most of our country churches, standing, as they generally do, upon some naked hill, without a shrub, or even a blade of grass, round them, and a long row of sheds for horses half encircling them. There are two churches, which we remember to have seen, that strikingly illustrate the effect produced by trees surrounding them. One of these is the chapel of St. Mary's College, Baltimore, a little bijou. Alas, how forlorn is the chapel of Cambridge compared with this! The other is the Catholic Church at South Boston; a modest little brick structure, which hides its unpretending form in a rich grove of oaks, and forms a delightful contrast to the absolutely disgusting churches which one passes on the way to it. There is much in this little edifice which we could wish to see copied. It is built of durable material, and, if the work is faithfully done, may last for centuries: nothing can be less ornamented; yet the form, entirely different from that of most of our churches, is highly picturesque. It stands upon a hill side, commanding a fine view of the surrounding country, and yet is sheltered from the gaze of passers by the beautiful grove which surrounds it. We know of nothing in the country round Boston to be compared to it.

We would impress upon our readers the fact, that a handsome church costs no more than an ugly one; because the beauty of such buildings depends much more upon the proportions than upon the ornaments employed. By attending to a few points, a great deal of elegance may be secured at a comparatively cheap rate. Great care should be taken that no ornament should be used which is disproportionate in cost to the other parts of the building; that all the ornaments should belong to the same style of architecture; and that none should be used, but for some express purpose, either to aid in the support of the edifice, or to conceal some deformity. If the church is to be of Grecian architecture, it is better to secure a classical roof, which is very flat, and consequently costs more; and at the same time, if necessary, to give up the portico with columns, which are very expensive, than to have a portico and a steep roof. A very elegant church may be had at a small expense, by merely erecting an oblong edifice of proper proportions, with a flat roof, of the same angle as that of the Parthenon, and giving it no other ornament than that of a Doric entablature, supported, perhaps, by pilasters. In the interior, it is better to make the pulpit and gallery very simple, and to finish the ceiling with a proper cornice, if the funds of the society are not enough for both. The most common deformity in our churches is the roof, which is generally so steep as to appear extremely uncouth and heavy. Every effort should be made to obviate this. In Grecian buildings, the roof should be made as flat as those of the classical models, and covered with lead or zinc to guard it from the weather. The difference in expense will not be great; and, to secure this beauty, many of the ornaments which are common in our churches had better be abandoned. The Gothic roof is much steeper than the Grecian; but, at the same time, this beautiful style provides an expedient for concealing the roof, and obviates the unpleasant effect produced by it. We are not aware that, in any instance in our country, the architect has availed himself of this advantage which the Gothic offers; and yet we think that many of the usual ornaments had better be sacrificed, in order to secure this. A Gothic church is generally divided into three aisles, which are distinguished by the piers, or columns, which go from the floor to the ceiling. To correspond to these, the roof should be divided into two portions; the slope should begin, as usual, at the eaves, and be carried up till it covers the side aisles: here it

should be interrupted by a wall rising perpendicularly over the piers, and supporting the remaining part of the roof. When the roof is thus divided, the lower portion is nearly concealed by the battlement; and the upper part is too narrow to produce a bad effect. Besides this, with such a roof, the ceiling is, of course, higher over the middle than the side aisles, and, being ribbed and arched, is very imposing. We doubt whether it is expedient for us to employ in the construction of our churches an order which depends so much upon ornaments for its effect as the Gothic. We are not yet rich enough to build Gothic churches; nor is there a single example in the United States which does justice to this noble style. If, however, we are to have it, let us begin in the right way, and build really Gothic edifices, instead of Yankee meeting-houses with Gothic ornaments on them, which we have now. Let it be remembered that pointed arches cannot alone constitute this style; and that all the common ornaments, the mullions, tracery, foliage, transoms, clustered pillars, battlements, parapets, spires, minarets, crockets, buttresses, niches, canopies, are wasted, if they are attached to a huge unseemly barn, like the one in Cambridge. The Gothic depends, not less than the Grecian, for its beauty on form and proportion. A church built in this style should be much greater in length than in breadth. A steeple is not necessary; but, if it be resolved upon, let it be well shaped, rather than highly ornamented; and we should prefer that the building should be without a steeple, rather than be deprived of buttresses. It is also highly desirable to introduce the division of the roof to which we have alluded above, as this adds greatly to the effect, both externally and in the interior. As yet, stained windows are hardly known in our country; and still, if our congregations would sacrifice some of the luxuries of the pews, gallery, and pulpit, they might afford this precious ornament, which we prize more than any that adorns the sacred edifices abroad. The effect of one large window of stained glass can hardly be conceived by those who have not witnessed it; and, if the money which it would cost could be saved by building the pulpit of pine, instead of mahogany, by having the organ in a cheap case, and by lining the pews with moreen, instead of velvet, we think it would much better be expended on so noble a decoration.

We cannot dismiss the subject of churches, without offering a word upon the arrangement of the singing-seats. These are generally in the front of the gallery, opposite the pulpit; the most prominent and exposed situation in the building. The organ is usually placed immediately behind the first row of seats, leaving only a narrow space between the keys and the front of the gallery. Now, it is a principle in music, very little recognised here, that the performers should be concealed. The effect of such an arrangement is remarkably illustrated in the Sistine Chapel at Rome, and in many of the convents in Europe, where the nuns chant behind a lattice. By placing the organ and singers in a recess with a back wall, the music is improved in several ways. There is a certain mingling and union of sound, which cannot be produced when the performers are stationed in a long row round the front gallery; and the tones are echoed from the recess with a power and harmony that are lost in a considerable degree when the music is performed in a more exposed situation. As our churches are commonly built, it would be extremely easy to have such an arrangement for the music, by cutting a recess from the back of the gallery into a porch, or tower, large enough to contain the organ and singers. The whole front of this recess should be open to the church, and the back closely walled up; and we venture to predict that, if such an orchestra as this were built, it would contribute greatly to the effect of the music. A contrivance somewhat similar to this has been lately adopted in the chapel of the University of Cambridge, and renders it one of the finest music-rooms in the country.

Nearly connected with sacred architecture is another branch of the art, which is quite new in the United States, though it has been cultivated and perfected for centuries in Europe,—Sepulchral architecture, which has been unknown in our country till within a few years, unless, perhaps, the

rude grave-stones of our burying-grounds may be thought to deserve the name.

The only remarkable display of this architecture is at the Mount Auburn Cemetery, near Boston. Too much praise cannot be given to those who originated this design, and selected the place. A lovelier spot we never saw. The lofty heights, the deep glens and valleys; the calm reservoirs, which reflect the surrounding hills and the skies from their unruffled surface; the deep shades, the retirement and peace of this hallowed ground; the tasteful paths, winding with labyrinthine turns along the varied surface; the green turf, and the sweet flowers which bloom over the silent graves; the simple monuments of white marble, which are discerned here and there amid the shade; the birds that warble their lays undisturbed by the invading hand of man; all conspire to throw a charm over the place that we can find nowhere else. Its natural beauty is not equalled by that of the famous Campo Santo of Pisa, the cemetery at Liverpool, or even Père la Chaise. In architectural splendour, it falls far short of these, and of many other cemeteries of the old world. Nor is it to be expected that we should see at Mount Auburn such a display of magnificence as in Europe. It is very desirable, however, that whatever is done should be in good taste; and we have a few remarks to offer with regard to this. It is worthy of notice, that the few models for monuments which were at first displayed have been very eagerly copied, and with no great variety. It is of great importance that the public taste, therefore, should be well directed, before the cemetery becomes filled with uncouth structures and monuments. The most remarkable specimen of architecture, and that which seems to have diffused its character over the whole place, is the gateway. This is of Egyptian architecture; and, in imitation, the principal portion of the monuments are in the same style. We have, accordingly, a great number of pyramids and obelisks, and tombs supported by Egyptian columns, and fashioned in the heavy proportions of that style.

It is very doubtful whether the Egyptian style is most appropriate to a Christian burial-place. It certainly has no connexion with our religion. In its characteristics, it is anterior to civilisation; and, therefore, is not beautiful in itself. No one will deny the superiority of the Grecian style in mere point of beauty. But more than this, Egyptian architecture reminds us of the religion which called it into being, the most degraded and revolting paganism which ever existed. It is the architecture of embalmed cats and deified crocodiles: solid, stupendous, and time-defying, we allow; but associated in our minds with all that is disgusting and absurd in superstition. Now, there is certainly no place, not even the church itself, where it is more desirable that our religion should be present to the mind than the cemetery, which must be regarded either as the end of all things, the last, melancholy, hopeless resort of perishing humanity, the sad and fearful portion of man, which is to involve body and soul alike in endless night; or, on the other hand, as the gateway to a glorious immortality, the passage to a brighter world, whose splendours beam even upon the dark chambers of the tomb. It is from the very brink of the grave, where rest in eternal sleep the mortal remains of those whom we have best loved, that Christianity speaks to us, in its most triumphant, soul-exalting words, of victory over death, and a life to come. Surely, then, all that man places over the tomb should, in a measure, speak the same language. The monuments of the burial-ground should remind us that this is not our final abode; they should, as far as possible, recall to us the consolations and promises of our religion.

But there is a style of architecture which belongs peculiarly to Christianity, and owes its existence even to this religion; whose very ornaments remind one of the joys of a life beyond the grave; whose lofty vaults and arches are crowded with the forms of prophets and martyrs and beatified spirits, and seem to resound with the choral hymns of angels and archangels. But peculiarly are its power and sublimity displayed in the monuments it rears over the tomb. The elevated form on which reposes the marble statue of the

mailed knight or the holy woman, composed into the stately rest of the grave, yet the hands folded over the breast, as if commending the spirit to God who gave it; the canopy which overhangs it; the solemn vault that rises above; the gorgeous window, through which is poured a flood of golden light, like a beam from heaven, upon the abode of the dead; these are the characteristics of the architecture of Christianity, the sublime, the glorious Gothic.

And this is the style we would have chosen for the prevailing architecture of Mount Auburn. True, we cannot rear those gorgeous structures, which the fervour of the middle ages called forth in Europe; no more can we rival the Pyramids in our Egyptian style; but, if we attempt to imitate either, the Christian style should have the preference. We shall be told, perhaps, that very few persons have the same disagreeable associations with the Egyptian architecture that we have expressed; that its solemn and heavy proportions become the tomb; and that it has the great merit of combining cheapness and durability. To these it may be replied, that, although there may be no preference existing previously in the minds of the community for one style or another, yet it is well to cultivate a preference for the Gothic, since it is a fact, which nothing can alter, that this is Christian architecture, and the Egyptian belongs equally to paganism. It is desirable that those who visit the graves of their friends should associate with the spot the monuments and decorations which their religion has consecrated for a thousand years. But "the Gothic is more expensive than the Egyptian style." And is it, then, a principal object, in rearing a monument to the memory of those we loved best, to save expense? Far be it from us to encourage extravagance in these structures; yet it seems to us, that if a few dollars more will purchase the change from the architecture of paganism to that of Christianity, they would be well expended. We doubt, however, whether a simple structure, such as the Gothic affords, might not be afforded as cheaply as any thing of the same size which is actually found at the cemetery. As yet the gateway must be considered as unfinished; the present structure being only a model in wood of what is hereafter to be perpetuated in granite. We would therefore suggest the question, for the consideration of those who are interested in the matter, whether the plan might not be changed, and a Gothic structure erected, instead of the one we now have, at little or no additional expense. A fine effect would be produced by a wall pierced by three pointed arches, the middle one very lofty and broad for the admission of carriages. This wall should be surmounted by a battlement of open work, or machicolated, as it is called, and should be supported by buttresses, or by octagon towers terminating in light pinnacles. Such a structure, we think, might be erected at no greater expense than the present one, and would serve as the model for a more suitable style of monuments than that which prevails in the cemetery.

We are far from wishing that the architecture of Mount Auburn should be exclusively Gothic. We are only desirous that this noble style should be introduced; for at present, we believe, there is not a single specimen of it in the place. Nothing can be more beautiful than some of the classic monuments which are found there: Spurzheim's for instance. The broken shaft and the Grecian altar are simple, and intrinsically elegant, and certainly deserve a place in the cemetery. Nor would we exclude the obelisk, by far the most beautiful form of Egyptian architecture, whose stern and severe proportions seem to speak of eternal duration; but among these we would claim a place, also, for the architecture of Christianity.

We come, finally, to the consideration of a very important branch of the art, Domestic Architecture, which is yet in a very unsettled state among us. With the internal arrangement of dwelling-houses we have little to do; supposing that every man can suit himself best. We would only suggest that, in building a house, the comfort of the interior is of much greater consequence than external symmetry or elegance. For the fashion of the exterior, however, there is much to be said. Domestic architecture seems to take two

forms, which we shall call the Palace Style and the Cottage Style. Under the former class we range all the larger edifices destined to be inhabited, which, from their dimensions, and the money expended upon them, are designed to assume regular architectural forms, and, being decorated with the usual ornaments of the Grecian or Gothic styles, contribute equally with churches and other public edifices to adorn the town in which they are built. Such edifices are to be judged by the regular laws of the art. The most remarkable specimen of the palace style in the United States is the President's House at Washington. Under the cottage style we rank all dwelling-houses whose interior is fashioned less with regard to the rules of architecture, than the convenient arrangement of the interior. These buildings do not depend upon architectural ornaments for their beauty, so much as upon their obvious fitness for comfort and use; and their forms, so far from being necessarily regular, are often most picturesque and beautiful when least symmetrical. By the cottage style, we do not mean to convey the idea of small or mean structures: it admits of large proportions and of great elegance. It only does not aim at that unity and symmetry of form, and richness of ornament, which belong to the palace.

But it happens, unfortunately, that the domestic architecture of our country is as ambitious as the society; and, as we do not acknowledge any superior in the social system, so we would be all on equal terms in our houses; and, if we have not money enough to build a large palace, we must, forsooth, have a little one; but a palace it must be, at all events, if it is but 10 ft. square. The result of this is, that the country is filled with ambitious little buildings covered with strange ornaments, and as fine as white and yellow paint can make them. The comfort of the rooms is sacrificed to the splendour of the exterior; and, the purse of the builder being exhausted by the effort, he is forced to abandon the improvement of his grounds; so that his unhappy palace stands alone in its glory, without a tree to shade it, or a single green shrub to rest the eye.

Of late, it has become much the fashion to build country houses in the form of a Grecian temple, with a projecting portico in front, resting on very magnificent columns. This style prevails at Cambridge. These classical models, which surround the college, are imitated closely in Cambridge-Port. Two or three specimens of this style are to be seen on the road which forms the continuation of the old Concord turnpike through the Port. One of them, in particular, we have noticed, as it has been in progress. It is a small edifice, the whole length of which, including the portico, may possibly be 30 ft., and the breadth 15 ft. The front of this little building is adorned with four massive fluted columns, with elegantly carved Ionic capitals, the cost of which can scarcely have been less than that of all the rest of the house. There seems to be a prevailing passion for columns throughout the country. One gentleman, in an interior county, has surrounded his house with them, and his example has been followed in a house at East Boston. We do not deny that these columns are very handsome: it is the thought of their material, pine wood, which destroys their effect; and we must say that, to our mind, the house might be made a great deal prettier, as well as more convenient, if the same money were expended in constructing it of some more durable material, and in adorning it with vines, shrubbery, and trees. Nothing can be more admirable for imitation than the English cottage style, as it is perfectly adapted to our climate, and in good keeping with our taste in ornamental gardening; and we would earnestly recommend to our architects to import plans and elevations of these buildings, which constitute the true style of domestic architecture, rather than to go on multiplying among us the abortive temples and palaces, with which the land already groans. Let them remember, as a general rule, that a house is made to live in, and the convenience of the occupants is the first thing to be considered: after this, the ornaments may be thought of.

The general form of a dwelling-house, in the city, is, in most cases, of less

importance than in the country, because houses are built in blocks, and are often, from the form of the land, deprived of symmetry.

There is one kind of ornament which might be used with good effect in our blocks of dwelling-houses, which are generally so plain as to be painful to the eye: we mean the appropriate ornament of windows, a rich heavy cornice above them, and a moulding extending sometimes down their sides. This contributes very greatly to relieve the plain surface, and give it a finished and elegant air. Any one who has visited Florence must have been struck with the prevalence and beauty of this ornament. It is hardly to be found in our cities: the best specimen of it in Boston, we believe, is on a large brick mansion in Beacon Street. In general, the windows are nothing more than square holes cut in the wall, and entirely destitute of their appropriate architecture. It may easily be imagined how much the fronts of the Tremont House and the Albion would be improved by the addition of these ornaments.

We are not aware that oriel windows are found in any building in the United States; and yet nothing can be more ornamental to the exterior, or contribute more to render the rooms agreeable. The effect of these beautiful windows, which project from the front of the house, something like the large shop windows, may be seen in all views of English cottages and ancient halls. They abound, too, in the college buildings at Oxford and Cambridge, and form a remarkable feature in the beautiful domestic architecture of that country. These windows might be adopted in our houses without any great expense, and, we think, would be found more convenient, and certainly much more beautiful, than the bows in front of many buildings. A row of oriel windows, projecting from the second stories of the houses in Park Street, for instance, would have a very picturesque effect.

We conclude with exhorting all house-builders to "fling away ambition;" to contrive their houses with a view to comfort rather than show; and to take special care that the proportions be not so great, and the cost so extravagant, as to gain for their edifices the unenviable name of "Follies."

ART. III. *A Critical View of the National Gallery.* By AN

AMATEUR.

INTENDING to be unmercifully severe, Mr. Wilkins has chiefly shown himself to be no less indiscreet than intemperate in his late attack upon amateurs, which was marked not merely by illiberality, but by an animosity amounting to virulence. If he considered himself aggrieved by one or two individuals belonging to that class, surely he ought to have contented himself with animadverting upon those offenders, without heaping indiscriminate abuse upon the whole body, and endeavouring to vilify and bring into contempt the only part of the public who evince any sincere attachment to architecture as a pursuit worthy to be cultivated by persons of liberal education. On the impolicy, as well as the littleness of such exceedingly narrow-minded and short-sighted jealousy, I need not expatiate, as both have been exposed in an article on Athenian Architecture in the last number of the *Foreign Quarterly*: my present purpose is to show that we amateurs are not exactly such ignoramuses as Mr. Wilkins would fain represent us; and, in executing it, I shall abstain from imitating his odd facetiousness — than which nothing

could be more easy for one to do, confining myself strictly to the proper matter of my subject. That I shall be at all less malicious, although somewhat more cautious, I do not promise him: that is altogether a different affair. By over-shooting its mark, exaggerated abuse generally proves comparatively harmless; while it is possible for cool and temperate criticism to show itself not a little formidable: and certainly the most malicious species of it is that which consists, not in vague and general censure, in mere assumptions and assertions; but that which not only distinctly points out serious errors, but even proceeds so far as to show by what means they might have been avoided.

Few will contradict me for saying that Mr. Wilkins has been indiscreet in making an attack, in his *Apology for the Designs by Phil-Archimedes*, not on amateurs alone, but on a professional rival; carping at Mr. Barry's design in the most unsparing manner, and raising against it several objections which are worse than frivolous, being nothing short of nonsensical. Surely, he must be aware that he was affording a precedent for a similar mode of treatment towards the National Gallery; we may therefore conclude that he considers that structure to be altogether impregnable to criticism; or, as he himself would probably express it, absolutely "fire-proof" against all its brands and torches. It may be so; yet, let us first of all hold the torch of truth to it, and quietly examine it by the light which that affords us. The general composition of the façade is by no means the happiest in effect, or the most appropriate in character; it being cut up into no fewer than thirteen breaks and divisions, so as to destroy all breadth, and all continuity of lines, and to give it the air rather of an assemblage of small buildings symmetrically arranged, than of a single edifice; which is all the more unfortunate, because it does not indicate gallery-shaped rooms within, and, consequently, displays a character very different from what one would expect as suitable to a building expressly intended as a public gallery for pictures. It is true that, so far, the exterior and interior perfectly correspond; the latter being, in fact, divided into merely moderate-sized rooms: certainly moderate-sized when considered as public exhibition rooms, although they might be called spacious in a private London mansion. It therefore becomes a question, whether the architect would not have done better to lay out his plan somewhat differently, so as to obtain at least one room, on each side of the centre, of the greatest extent the plan itself would admit. How this could have been effected, I shall explain when I come to speak of the plan more in detail: at present I pass on to notice the elevation.

Here, I think, Mr. Wilkins falls very far short of what he has done at the London University, where the centre is finely marked by the portico and dome, which harmonise well with each other;

while in this building, owing to its being raised on a tambour of lofty proportions, the dome will, I apprehend, be found, when completed, to interfere too much with the portico; not only causing the latter to appear low by comparison, but being also in itself too dissimilar in taste from the other features. Although domes were unknown to the Greeks themselves, there is no inconsistency in introducing them in buildings professedly Grecian in style, provided they be made to conform with such style — to comply with the taste it manifests, and to appear what we might imagine the Greeks themselves would have made of such a feature had they been acquainted with it. Yet, such is certainly not the case here, both the height of the tambour and the narrow arched windows in it, being altogether inconsistent with what we observe in the earliest domes of antiquity — Roman, though not Grecian. Why Mr. Wilkins should have chosen to retain the arched windows just mentioned, when he takes credit to himself for having got rid of the arched entrances to the two thoroughfares, as they existed in his model, substituting for them square-headed doorways, it is difficult to imagine; because the application of arches to wide openings would have carried with it its own apology, on the score of something like necessity; whereas a horizontal lintel will suffice for narrow ones. These small arches are, besides, all the more offensive, as there is nothing else of the kind in any other part of the design; either, therefore, these should have been discarded, or the others allowed to remain; since in the latter case some degree of consistency would have been kept up between the different parts of the design, which, certainly, is not done at present, as the dome is now altogether distinct from the rest.

Should it be said that, after all, the objection thus raised is somewhat too hypercritical and captious, my reply is, that I do no more than judge Mr. Wilkins by the standard of taste he himself has set up; therefore, when we find him, while professing to adhere implicitly to Grecian authority, deviating from it so widely and so gratuitously as he has done, neither he, nor any one else, ought to wonder at his being reproached with contravening his own doctrine. To say the truth, punctiliously scrupulous as he is in regard to some points of Grecian architecture, he is not a little lax as to others. Of this he has afforded tolerably convincing proof by placing a balustrade instead of a podium above his entablature; for, so far from being Grecian, or even Roman, balustrades are altogether of Italian invention. Were the application of one a matter of downright necessity, as is the case with windows, then, indeed, the plea of dire necessity might avail him; but this sin against costume (if I may so term it) is one altogether optional on his part; and I leave him, therefore, to defend it as best he may.

What Mr. Wilkins chiefly plumes himself upon are his porticoes; and to that of the University, I have borne my testimony above. I admired it at first, and I admire it no less now; far more, indeed, than I am likely ever to do that of the National Gallery, which, I must confess, has exceedingly disappointed me; manifesting, as it does, a decided falling-off from an earlier production by the same architect. The utmost that can be said in its favour is, that it supplies what we had not before in the metropolis—an instance of a prostyle octostyle; and that, as far as the columns themselves and the mode of intercolumniation are concerned, there is undoubtedly much beauty: still it is merely of that kind which is at every one's command, attainable by the most expeditious and easiest kind of architectural copying; in short, no more than what might equally well be achieved by an amateur:—lower than that, in Mr. Wilkins's opinion, I presume it is impossible to go. With the sole exception, that it has two columns in front more than the generality of our London porticoes, and is rather more advanced from the main building than they are, there is nothing else whatever manifesting—I will not say originality, but novelty. It is the very same hackneyed feature that we are all familiar with; a single row of columns beneath a pediment, jutting out from the mass on either side of it, but without any other lines of columns coming in contact with it, so as to produce a rich and varied assemblage of pillars, brought, as it were, into a focus. On the contrary, the two compartments of the front, which are laterally in immediate contact with the portico, are distinguished by a greater degree of nakedness than any of the others; there being no niches above the windows, as elsewhere, but the upper parts of the interpilasters are so many blank spaces, without decoration of any kind; thus producing contrast, indeed, yet contrast of a very disagreeable kind; and occasioning a cold, naked, unfinished appearance, precisely where a greater degree of embellishment was required, in order to combine, as far as possible, the portico and these parts into one leading division of the whole façade, corresponding with that of the internal plan. When we come to examine details, we meet with equal, if not still worse, inconsistencies; for, contrary to every principle of harmony, unity, and due modulation, an entablature and pediment of the very plainest description are placed above Corinthian columns of the most florid character, not only fluted, but with carved tori to their bases, and with elaborately wrought capitals. The result is a most harsh and offensive anticlimax; the eye passing from richness to poverty and insipidity; and there being nothing whatever above the capitals either to agree with or bear out the tone set by them, and which ought to per-

vade not only the whole of the order itself, but be made to communicate itself to every other part of the design. Unless a suitable entablature could have been bestowed on them, it would have been very much better had the columns been unfluted; because then the whole would have been more of a piece.

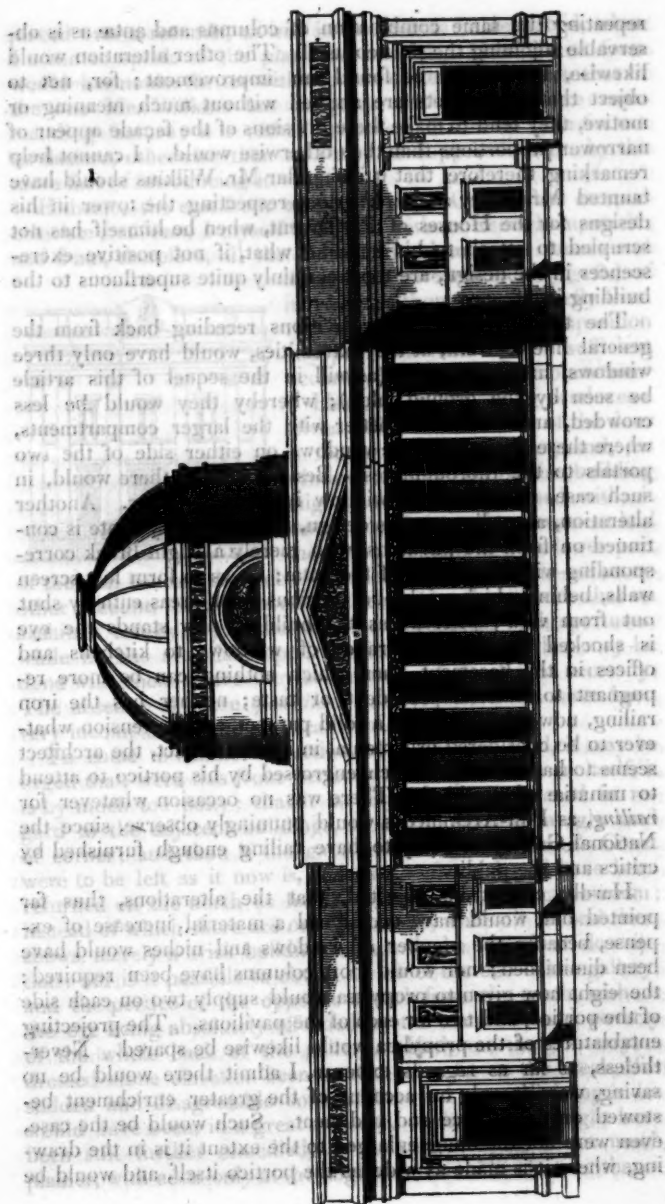
As it is, we behold an order made up of the most jarring and conflicting elements; and, moreover, a principle violated that appears to be, if not formally laid down, practically recognised in every style of architecture; namely, that the parts constituting the upper termination of a structure should be marked by a greater degree of finish or ornament than those below it. Thus, in Grecian Architecture, we behold, in addition to sculptured friezes and pediments, ornamental tiling, antefixæ and acroteria; in Roman and Italian, highly wrought cornices and *cornicioni*; and, in Gothic, enriched parapets and pinnacles. This mode of treatment seems conformable with the laws of nature, which, in nearly all organised bodies, appears to bestow greater finish and ornament on their upper extremities. The plant terminates in its flower, as the column in its capital; and what the capital is to the column, such ought the cornice and the parts immediately connected with it, let them be either above or below it, be made with respect to the whole design.

As regards consistency, therefore, I think that the order, at least, of the portico of St. Martin's has the advantage over that composed by Mr. Wilkins; and, if the pediment of the former building be disagreeably high, that of the National Gallery is as disagreeably low. As little are the antæ, or pilasters, to be commended; for, while their capitals are in a style altogether different from that of the other capitals, they are so large and obtrusive on the eye as to form spots, and in some degree to occasion the windows and niches to appear more diminutive than they otherwise would do. The small windows on either side the entrances to the two thoroughfares might have been omitted without any loss of beauty, or the slightest inconvenience; because those on the west side are only sham ones, and the others belong merely to a water-closet and another room, for which sufficient light might have been obtained by windows opening toward the thoroughfare itself. The omission of these apertures, which now look squeezed in between the antæ of the propylæa, would have given breadth and repose, together with the appearance of solidity, where they are particularly required; and would have done much towards abating the offensiveness of so many apertures in the lower floor, while the upper one presents only a solid wall. In fact, as regards these particulars, the original model was preferable to the executed design; since in that (whether merely suppressed for the sake of appearance, or not) there were no

windows in the divisions constituting the entrances to the thoroughfares.

Thus far I have stated my objections; which, however unreasonable they may appear to others, I have endeavoured to support by what appear something like reasons to myself. I now proceed to show how the design might have been simplified by suppressing some of the very numerous breaks, so as to divide it into bolder masses; yet, at the same time, have been made of more striking and richer character as regards the effect produced by columns, without adding at all to, but rather decreasing, the number of them now actually employed. By the annexed cut (*fig. 1.*), in which, for the sake of distinctness, no more of the elevation is represented than the portion comprising the entrances to the two thoroughfares, it will immediately be seen that the *tetrastyles* attached to the last-mentioned features are removed, and, in lieu of them, two columns in *antis* added on each side of the portico; leaving the portico itself, in other respects, as before, with the exception that the pediment is more elevated, and filled with sculpture. The cornice, likewise, would be correspondingly enriched; although, owing to the smallness of scale to which the elevation is unavoidably limited, in order to accommodate it to the size of the page, the details are not even attempted to be indicated; neither are the columns represented as fluted, although intended to be so, because justice could not have been done to such minutiae; therefore the cut is to be considered merely as explanatory of the general scheme.

Thus, instead of nine compartments in the space between the two pavilions surmounted by the turrets, there would be only three, reckoning as a single one that in the centre; for, although in itself subdivided by the projecting parts beneath the pediment, still it might, with reference to the rest, very well be considered as forming a centre to the façade of that extent; while, as compared with the portico alone, the division on each side of the centre would possess an air of extent not contradictory to the idea of there being lengthened galleries in those situations. With this view, both the entablature, and the podium above it, are carried on unbroken as far as the pavilions just mentioned. As these latter are not shown in the elevation, it is necessary to describe the variations adopted for them in this design. These would consist chiefly in substituting a distyle in *antis* (with columns merely insulated from the wall) for four pilasters, as at present; and supplying the place of the turrets by an attic above the order, having a semicircular niche with sculpture similar to those in the plane faces of the tambour of the dome, but of less diameter. The introduction of columns in these parts would produce that degree of richness which would bring them into keeping with the centre, and increase the unity of the composition, by



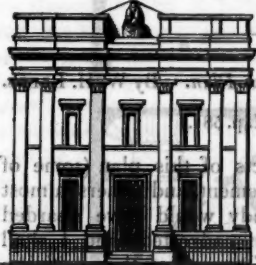
repeating the same combination of columns and antæ as is observable adjoining the portico itself. The other alteration would likewise, I conceive, be found an improvement; for, not to object that the turrets are applied without much meaning or motive, they tend to make these divisions of the façade appear of narrower proportions than they otherwise would. I cannot help remarking, therefore, that it is singular Mr. Wilkins should have taunted Mr. Barry as he has done respecting the tower in his designs for the Houses of Parliament, when he himself has not scrupled to attach to his building what, if not positive excrescences in the design, are most certainly quite superfluous to the building itself.

The two *arrière-corps*, or divisions receding back from the general line of front, at the extremities, would have only three windows, instead of four (as will in the sequel of this article be seen by the ground plan); whereby they would be less crowded, and harmonise better with the larger compartments, where there are only three windows on either side of the two portals to the thoroughfares. Besides which, there would, in such case, be a central window instead of a pier. Another alteration, according to this design, is, that the stylobate is continued on from the pavilions, with merely a slight break corresponding with the return of the antæ; so as to form low screen walls, behind which might be spacious sunk areas entirely shut out from view; whereas, as the building now stands the eye is shocked by the appearance of windows to kitchens and offices in the basement, than which nothing can be more repugnant to classical precedent or taste; neither has the iron railing, now substituted for a solid parapet, any pretension whatever to be considered ornamental in itself. In fact, the architect seems to have been too much engrossed by his portico to attend to minutiae of any kind. There was no occasion whatever for railing, as Phil-Archimedes would punningly observe, since the National Gallery is likely to have railing enough furnished by critics and the public.

Hardly can it be objected, that the alterations, thus far pointed out, would have occasioned a material increase of expense, because the number of windows and niches would have been diminished; nor would more columns have been required: the eight now given to propylæa would supply two on each side of the portico, and two for each of the pavilions. The projecting entablatures of the propylæa would likewise be spared. Nevertheless, as far as regards expense, I admit there would be no saving, were it only on account of the greater enrichment bestowed on the cornice and pediment. Such would be the case, even were not the dome enlarged to the extent it is in the drawing, where it is made as wide as the portico itself, and would be

placed over a rotunda; as will in due course be described, when I come to speak of the plan and interior. How far its form would harmonise better with the rest of the edifice than that of the one Mr. Wilkins has adopted, and prove a more commanding feature; it is rather for others to decide than for me to declare, otherwise than as I may be supposed to do by the mere fact of introducing it.

Hitherto, the east front of the National Gallery has escaped criticism; at least, I myself have met with no remarks upon it; and I am, therefore, all the more induced to make some; and



likewise to give a sketch (fig. 2.) of it, which, although done chiefly from recollection, shows the composition and principal features with sufficient accuracy to serve as an explanation.

Here, again, the railing produces a trivial effect: the cornice of the door is too poor and meagre; and, as windows at this end of the building might have been dispensed with, it would have been an improvement had they been omitted, and the lower part of the wall beneath the niches been left plain and solid,—if on no other account, for the reason that it very rarely happens that an architect can by any means contrive to suppress such apertures, while he has abundant opportunities of showing what may be done with them where they are matters of downright necessity. The absence of those *quotidian* features would not have been very incompatible with classicality of style.

To come to another objection, of a different kind, it may be urged that, were this front perfectly unexceptionable in itself, it is by much too petty; that it is very awkwardly placed in regard to the adjacent buildings, so as to occasion an ugly kind of corner; and that, if the gap, or opening, into Duke's Court were to be left as it now is, at least the front should have been returned on the north as far as the extent of the lecture-room; instead of which there are only two *antæ*, while all beyond them shows merely a brick building of nearly the homeliest description: nor is it possible to obtain a view of the end of the gallery, and the portico of the opposite church from the north, without the eye being absolutely offended by the blankness and poverty of the whole back of the gallery. Had, on the contrary, a dressed stone elevation been carried on as far as the break, this sudden and disagreeable contrast between two adjoining sides would have been, in a great measure, obviated; and might have been still further remedied, by making the east front much plainer, with *antæ* only at the angles, and no other feature than a

large central door. I, however, should prefer seeing it treated altogether differently, both from the mode just hinted, and from that which has been carried into execution. By no means would it have been difficult, I conceive, to have taken advantage of the obstacles by which Mr. Wilkins has suffered himself to be checked, to have entirely concealed all the disadvantages of the situation, and to have produced a somewhat novel architectural composition. What my own ideas in regard to this point may be, I purpose showing in another paper; for the length to which this communication has already extended compels me to defer inserting that sketch until the next Number.

ART. IV. *An English Version of a French Plan.* By W. H. LEEDS.

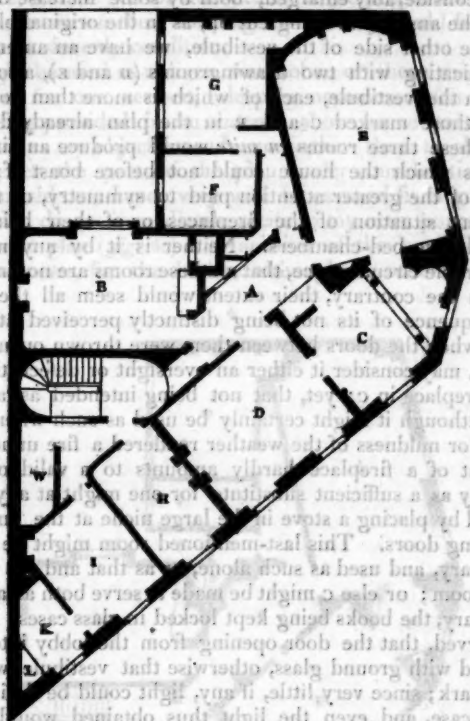
(Continued from Vol. III. p. 581.)

UPON the inconveniences and defects of this plan (some of them inherent in the primary arrangement, and others almost gratuitous, being such as a little study would have guarded against or removed) I have freely animadverted; and I shall now afford an opportunity to others of exercising their criticism as unreservedly upon the two variations of that plan which I am about to submit. Unless I greatly deceive myself, they will, however, be allowed to be, upon the whole, decided improvements, and, certainly, far better calculated, according to our English notions, for making display; the sitting-rooms being grouped together in immediate communication with each other, while the bed-chambers are kept distinct from them. The objections against thoroughfare sleeping-rooms, or the practice of throwing them open to visitors, for the purpose of increasing the suite of apartments, need not be repeated; yet it may be remarked, in addition to what has been said on the subject, that such a practice plainly shows the number of rooms to be inadequate to the style of living aimed at.

If the reader will refer to the original plan (Vol. III. p. 577); and compare this (fig. 3.) with it, he will perceive that the staircase remains as before, as do likewise many of the other parts, if not exactly, yet very nearly so; and that one of the chief alterations consists in providing a small passage and lobby (a), which would afford access to most of the rooms, without making any one of them a thoroughfare. Were nothing else obtained by this change than such an inner vestibule, even that alone would be an advantage, as the dining-room would no longer open immediately upon a staircase forming the common entrance. Instead of being, as before, both vestibule and dining-room, the apartment appropriated to the latter purpose (b) is now

ments (such as, at least, I am pleased to fancy them) the room itself is considerably enlarged, both by some increase of length and by the addition of the original plan. (c) On the other side of the vestibule, I have an anteroom communicating with two drawing-rooms (a and b) and access-ible from the vestibule, each of which is more than double the size of those marked on the original plan already described. I think that these rooms would produce an air of spaciousness, which the house would not before boast; (f) to say nothing of the greater symmetry and symmetry of the more convenient situation of the principal staircase, which is detached from the main body of the house, it is by no means an unknown fact, that the persons are in a great line: on the contrary, their view should seem all the greater, in consequence of its being directly perceived at the first glance, while the house is viewed from the street. Some, perhaps, may consider it either an oversight or a mistake, that there is no fireplace in either of the two drawing-rooms, or a sitting-room, although it is not certainly to be expected that the warmth or mildness of the weather renders a fire unnecessary; the want of a fireplace hardly seems to be a valid objection, especially as a sufficient and fine fire might at any time be provided by placing a stove in a large niche at the end facing the folding doors. This last mentioned room might be fitted up as a library, and used as such, should the ordinary sitting-room; or else it might be made to serve both as an anteroom and library, the books being kept locked in glass cases. It should be observed, that the door opening from the body to c must be glazed with ground glass, otherwise that view would be nearly dark; since very little if any light could be derived from the staircase, and even the light thus obtained would be but barely sufficient to obviate positive inconvenience. (d) An even-

made entirely independent of any other; instead of five doors, has only two, one of which might be dispensed with; yet, as in such case there would require to be a sham door, to correspond with that on the other side of the sideboard, advantage is taken of this circumstance to place a closet in that situation, where some articles of plate and china might be kept; should there, however, be any objection to, or else no occasion for, doing so, the matter would be easily settled by locking the door altogether, and letting it pass for a sham one, rather than what it was intended for. The alteration, too, in respect to the window, cannot but be allowed to be a decided and very material improvement, whether as regards the symmetry of the room, or the distribution of light; and, in order both to form an *embrasure* to the window, and give the appearance of greater thickness to the walls, it is made to project externally. Besides these improve-



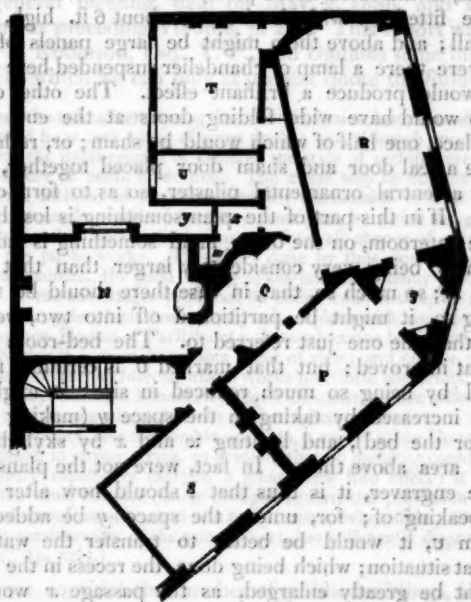
ments (such, at least, I am pleased to fancy them), the room itself is considerably enlarged, both by some increase of length, and by the angles not being cut off, as in the original plan.

On the other side of the vestibule, we have an anteroom (c), communicating with two drawingrooms (D and E), also accessible from the vestibule, each of which is more than double the size of those marked c and E in the plan already described. Thus, these three rooms *en suite* would produce an air of spaciousness which the house could not before boast of; to say nothing of the greater attention paid to symmetry, of the more convenient situation of the fireplaces, or of their being quite detached from bed-chambers. Neither is it by any means an unfavourable circumstance, that all these rooms are not in a direct line: on the contrary, their extent would seem all the greater, in consequence of its not being distinctly perceived at the first glance, when the doors between them were thrown open. Some, perhaps, may consider it either an oversight or defect, that there is no fireplace in c; yet, that not being intended as a sitting-room, although it might certainly be used as such whenever the warmth or mildness of the weather rendered a fire unnecessary, the want of a fireplace hardly amounts to a valid objection, especially as a sufficient substitute for one might at any time be provided by placing a stove in the large niche at the end facing the folding doors. This last-mentioned room might be fitted up as a library, and used as such alone, or as that and the ordinary sitting-room; or else c might be made to serve both as anteroom and library, the books being kept locked in glass cases. It should be observed, that the door opening from the lobby into c must be glazed with ground glass, otherwise that vestibule would be nearly dark; since very little, if any, light could be derived from the staircase, and even the light thus obtained would be but barely sufficient to obviate positive inconvenience. Of an evening, it might be just as well lighted as any of the rooms.

The bed-rooms (r, q, u, t) are the same in number as before; and to one of them a dressing-room (κ) is attached; but the other three have no such appendage to them. This circumstance, however, I by no means consider a material drawback on the plan, since it appears to me hardly worth while to make any sacrifice in what is more important, in order to secure what may be so very well dispensed with. It is, surely, no very great infringement of *biensoance* for a person to make use of his bed-chamber as a dressing-room: far less so, in my estimation, than the practice, adopted without scruple by those *arbitri elegantiarum*, those fastidious observers of the *το καλον* and the *το κρενον*, the French themselves, of admitting visitors into such domestic penetralia, the doors of which ought to be closed against other intruders than chambermaids, doctors, and nurses.

I admit, however, that in France such custom may have its use; since, were it not for the attention the people are thus induced to bestow on their sleeping-rooms, they would frequently be in a most slovenly condition. The ceiling or ball room might be used as a linen wardrobe, or there might be a bed there for one servant, sleeping accommodation for the others being provided in an *entresol* above some part of this floor; but, as my object extends no further than to show how much better the part of the plan under consideration might have been laid out, I may very well be excused from going into matters that do not immediately relate to my main purpose.

The next plan (fig. 4.) is a variation of the preceding, and, in some respects, for the better, although in others hardly so



good. The dining-room (n) is not at all altered otherwise than as the sideboard is enlarged by its being extended on one side of the recess: yet that is entirely optional; for, by removing *w* to *x*, which is now merely a lighted passage leading to it, there might be a closet to the dining-room, as in the former case. One of the principal recommendations of this second plan is, that the lobby, or vestibule (o), is rendered more spacious and

better shaped; and the large niche, or recess, facing the door leading into *r* would produce a good effect, and especially of an evening, if there were candelabra or a tripod with lamps placed in it. The ceiling, or half dome, of this recess would be a skylight, as it would rise above the parts marked *w* and *x*, and there would be nothing over them.

According to this plan, there would be one room less, inasmuch as the anteroom is taken away; but, then, some amends would be made for this by the improvement in the vestibule, which might be considered as a kind of ante room; while the drawingroom *r* would certainly gain much by the change, it being considerably extended by a hexagonal alcove (*q*) with a window in it. The opening from the room to this might be either an arch or between antæ; and within these might either be niches, as indicated in the plan; or those sides of the alcove might be fitted up with bookcases, about 6 ft. high, recessed in the wall; and above them might be large panels of mirror, which, were there a lamp or chandelier suspended here from the ceiling, would produce a brilliant effect. The other drawing-room (*r*) would have wide folding doors at the end opposite the fireplace, one half of which would be sham; or, rather, there would be a real door and sham door placed together, and divided by a central ornamental pilaster, so as to form one composition. If in this part of the plan something is lost by taking away the anteroom, on the other hand something is gained, the bed-room *s* being very considerably larger than that marked *n* in *fig. 3.*; so much so, that, in case there should be necessity for doing so, it might be partitioned off into two, very little smaller than the one just referred to. The bed-room *r* is also somewhat improved; but that marked *v* is certainly not at all benefited by being so much reduced in size: it might, however, be increased by taking in the space *y* (making there an alcove for the bed), and lighting *w* and *x* by skylights, from an open area above them. In fact, were not the plans already with the engraver, it is thus that I should now alter the part I am speaking of; for, unless the space *y* be added to the bed-room *v*, it would be better to transfer the water-closet (*w*) to that situation; which being done, the recess in the vestibule (*o*) might be greatly enlarged, as the passage *x* would bear to be made narrower than it now is.

Having pointed out every thing that calls for notice, I shall now, instead of making any additional comments, conclude at once with the somewhat hackneyed quotation:—

"Siquid novisti rectius istis
Candidus imperti; si non, his utere mecum."

REVIEWS.

ART. I. *Transactions of the Institute of British Architects of London.* Sessions 1835-36. Vol. I. Part I. London, J. Weale, 59. High Holborn.

WE have received this interesting volume just in time to give a general idea of its contents, intending to turn to it afterwards when we have more leisure. It commences with an address, showing the advantage which architecture and the public are likely to derive from an association similar to those which exist in the case of most other arts and sciences. The greater part of this address is given in our Vol. II. p. 305, 306. The regulations follow, and next, the report of the council, read at the annual general meeting, held on May 2. 1836, and which is noticed in our preceding Volume, p. 288. This report was drawn up by P. F. Robinson, Esq., V. P., and contains some interesting remarks, of which we can only at present quote the following:—

“Whether the animadversions against the profession have been deserved or not, we should hope may admit of some doubt; yet, although much has been done towards the improvement of London, the style of architecture is not, in all cases, so pure as could be desired. The cause may be difficult to solve; and yet we are inclined to consider it mainly attributable to that system of exclusion, so severely practised for some years past, by which the great body of the profession has been entirely shut out from all chance of obtaining any portion of the public works. The injury done by thus closing the door to exertion was manifest, the good arising to the public, certainly problematical. As a proof of the advantages produced by public competition, we need only refer to the struggle which has recently taken place with regard to the designs for the new Houses of Parliament; the productions having exhibited the talent of the day in a most favourable point of view; and no one can doubt but that many of the architects, whose works now form the exhibition at the National Gallery, will most honourably acquit themselves when called upon, at any future time, to superintend works of the highest class of art.

“Some years since, on a memorable occasion, a report of the House of Commons expressed, in strong terms, an opinion, that no architect could be found in this country capable of carrying a great work into effect: it was well known, at the time, that the charge brought against the profession was most injurious and unwarrantable; and the recent event, when ninety-five men sat down to the consideration of the same subject, has sufficiently disproved these conclusions.” (p. xxiv.)

When we consider the number of public buildings, including palaces, prisons, and public offices, which have been bungled by government during the last thirty years, we are almost tempted to exclaim, that any system would be better than the exclusive one above alluded to by Mr. Robinson. But a system of free competition and subsequent examination, similar to what has been stated in our preceding volume to be practised on the Continent, would be of the greatest benefit to architects, to the government, and to the taste of the country. Next follows a list of

contributors, with their contributions to the collection, to the library, or to the general funds of the Institute; by which it appears that a very considerable library has already been collected. These articles occupy 38 pages of what may be considered preface.

The communications are arranged under the heads of Construction, Antiquities, and Literature.

CONSTRUCTION.

Art. 1. Prize Essay on the Nature and Properties of Concrete, and its Application to Construction up to the present Period. By George Godwin, jun., Associate. Appendix A. Extracts from the Specification for building the new Bridewell, Westminster. Appendix B. Table of the relative Weights of Concrete and different sorts of Stone.

We have already spoken in favour of Mr. Godwin's excellent article (Vol. III. p. 480.). With respect to concrete, three elementary points are to be kept in view; viz. the ultimate object for which concrete is formed; the philosophical principles of its composition; and the practical rules derived from these principles. The object is, to produce a substitute for very large stones; and, consequently, the materials to be employed should be such as will have the mechanical strength of stone, its homogeneity, its cohesion, and its durability. These conditions can only be fulfilled by employing a combination of small stones of the hardest kind, and conglomerating them into a solid mass by cementitious matter. The principles on which this composition is to be formed are two: first, that the materials be naturally hard and durable; and, secondly, that their union be chemical, and not merely mechanical. The rules to be deduced from these principles will vary, in different parts of the same country, or in different countries, according to the nature of the small stones or gravel, the sand, and the lime, which the given country affords. About London, to form a cubical yard of concrete, it requires about 30 cubic feet of ballast or small stones, chiefly flints, taken out of the bed of the Thames, and containing a quantity of coarse sand; and three fourths of a cubic foot of ground lime: but about Edinburgh, or about Dublin, where what is called Thames ballast is not to be had, where the small stones are in the one case chiefly basalt and granite, and in the other almost entirely limestone; where the limes are of very different qualities from that of Dorking, and where the sand, which is obtained from pits, is small-grained and earthy; the principle which directs that a chemical union shall take place will require different rules for the proportions of the materials. These can only be determined by experiments, which may be made in rectangular wooden boxes; the materials, after being set, being taken out of

the box, and tested by penetrating the mass with an iron crow-bar, and by fracture. Wherever an architect or a builder does not clearly understand what is meant by chemical union, we would recommend his calling in the aid of a practical chemist. Every one knows what is meant by the setting of Roman cement or stucco; and concrete, when the materials are properly proportioned, ought to set in a manner equally obvious and decided.

The following directions for mixing and applying concrete, having nothing to do with the nature of the composition, are applicable in every country, and may therefore be very appropriately quoted:—

“The methods of mixing and applying concrete are several, having each its advocates and opponents: the one most generally employed, and, as I shall attempt to show, the best, is, thoroughly to mix the lime, previously ground, with the ballast, in a dry state; sufficient water being then thrown over it to effect a perfect mixture, it should be turned over at least twice with shovels—if oftener, so much the better—put into barrows, and wheeled away for use *instantly*. It is generally found advisable to employ two sets of men to perform this operation, say three in each set; one man to be engaged fetching the water, &c., while the other two turn it over to the second set, and they, repeating the process, turn it over to the barrow-men. Sometimes, instead of mixing the materials in a dry state, the ballast is spread out and wetted with water, then covered with the proper proportion of ground lime, and turned over as before.

“After being put into the barrows, it should at once be wheeled up planks, so constructed as to gain a fall of some yards, and thrown into the foundation, which has the mechanical effect of driving the particles closer together, and giving greater solidity to the whole mass. Soon after being thrown in, the mixture is observed to be in commotion, and much heat is evolved; sufficient, indeed, to throw off a large quantity of water in the shape of vapour. This is caused by what is termed the slaking of the lime. When water is thrown upon lime, the two combine, in the proportion of three parts of lime to one of water, and the result is *hydrate* of lime, or, in common parlance, slaked lime. In combining, condensation is effected; the lime and water together occupying little more space than the lime had before done singly. Now, when the particles of matter composing a body are brought closer together, or the interstices, and these occur in all bodies, are filled up with other matter, as by mechanical compression or chemical combination, it is supposed that its capacity for heat is lessened; for caloric is always evolved, as instanced in the above.

“During this process of slaking, the mixture slightly *expands*, and, by so doing, forces itself together, and still farther assists the consolidation. This effect is one of the advantages derived from the use of ground lime, independently of its being more powerful as a cement than when previously slaked—of this, however, hereafter.

“The concrete, then, being thrown into the trenches, or intended site of building, it is customary with some to keep a man constantly employed in levelling and puddling it, as it is termed: this, if it be done, should follow instantly that the barrow-load be emptied; for if the concrete be first allowed to set, much harm will be done by disturbing it, while the benefit which results in any case from the process is but trifling. For my own part, and it is also the opinion of many practical men, I would not have it in the least disturbed, but allow it to remain precisely in the situation into which it had been thrown from the barrows. As the concrete stratum approaches the surface,

this operation may in a degree be necessary, in order to obtain a level face; but whenever it is done, again I would say, let it be done quickly.

"The barrow-load of concrete, in the fall, spreading over the ground, will be found, if continued regularly over the surface, to form a stratum from 7 in. to 10 in. thick, which should be allowed to set before throwing in a second; this, however, if the building be of any size, has usually taken place at the near end by the time that the far one is completed.

"It is advisable always to perfect one stratum before commencing the second; but if this be impracticable, the second stratum, or bed, as it approaches the end of the first, should stop something short of it; the third, in like manner, short of the second, and so to the top, forming steps, as it were, upon which the strata, afterwards to be filled in, may rest."

In the formation of concrete, it has been found that a diminution takes place, after the compound is prepared and set, closely approximating to one fifth of the materials; that is, a cubic yard of concrete, which contains 29 cubic feet, has been found to require 30 cubic feet of ballast, and $3\frac{1}{4}$ cubic feet of ground lime. After the composition has been put together, and while in the act of setting, during the slaking of the lime, an expansion takes place; and of this, Mr. Godwin observes, "an important use has been made in the underpinning of walls.

"The amount of expansion has been found, by experiment, to be about three eighths of an inch in every foot of height; and the size thus gained the concrete never loses; so that if it be placed in the desired situation before heating, as it is termed, this property will cause it firmly to wedge up and support the superincumbent mass. All due allowance or preparation should be first made to prevent accident; for, so great is the force with which this expansion takes place, that one who has been long practically engaged in the application of concrete assures me he has seen a wall riven by it."

We strongly recommend this essay to the study of the architect and builder.

ART. II. A Letter from Robert Abraham, Esq., Architect, on the Concrete used at Westminster new Bridewell.

Mr. Abraham presented the Institute with several specimens of concrete made on the ground, some months before the work commenced, in order to ascertain by experiment the proper proportions, mode of throwing in, &c.

"The result of the experiments made during the progress of the work was fully confirmatory of the views originally detailed in contract; which required an admixture of 1 lime to eight ninths gravel, containing sand in the proportion of two ninths of the aggregate; or, in other words, one ninth lime, two ninths sand, sixth ninths gravel. In making a few practical remarks, I beg to state that care and regularity in the execution of the work are of great importance, success very much depending upon the degree of precision and uniformity preserved in proportioning the components; it is therefore necessary that such a system be adopted of depositing the material, on delivery, either in rectangular or other shaped heaps of uniform size, as will render obvious any deficiency of lime or sand, and be an invariable measure for the requisite quantity of water. The mode of throwing in the concrete is also important, very great advantage being obtained from the rapid consolidation arising from pressure, when cast from a height, instead of being laid in steps, or layers. The degree of expansion peculiar to concrete, when thus executed,

may be noticed: this takes place immediately after the operation of slaking has occurred, giving an urgent reason for the prompt use of the material after mixing, and showing the necessity of using the lime in a perfectly fresh and pure state. Large landings are raised very perceptibly by this peculiarity, and the crown of a brick arch has been known to fracture from its effect. It must, however, be stated, that this expansion occurs subsequently to an original loss of some magnitude; upon the measure of unmixed material, 27 cubic feet of gravel (with its due proportion of sand included), together with 3 ft. of ground lime, and a little more than four cubic feet of water, yielding only 24 ft. of concrete." (p. 39.)

Art. III. An Account of the Method used in underpinning, with Concrete, the Long Storehouse at His Majesty's Dockyard, Chatham, in the Year 1834. By George L. Taylor, Fellow. With a plate.

By the use of concrete, in this instance, underpinning, which was estimated for at 8,800*l.* in brickwork, was done for considerably less than one half of that sum. The mode of pouring in the concrete, and, when the substructure is nearly completed, of compressing it between frames, acted on by screws, so as to take the bearing of the superstructure, is very ingenious and effective; and is made obvious at the first glance by a clever lithographic sketch.

Art. iv. Description of the Metal Roof at Hungerford Market. By Charles Fowler, Hon. Sec. With two plates.

An exceedingly interesting article, full of sound practical information, and well deserving the study of those who give designs for covered markets.

"The chief peculiarities to be noticed in the construction are, the absence of any tie or lateral abutment; the former being inadmissible, from the want of height; and the latter impracticable, by the detached position, and having no connexion with the colonnades. It must be obvious, that, if the projecting arms beyond the columns were nearly equal to the middle portions of the ribs, which meet and unite in the centre, an equipoise would be produced, and then no tie would be required; but it has been before stated, that the position of the supports was limited, and in such a way as to throw a vast preponderance into the central compartment, producing, of course, a proportionate degree of lateral pressure. To counteract this, an abutment is formed in the centre, by elongating the junction of the two half ribs, principally upwards, by which the pressure is spread over a greater extent of surface, tending towards the top; and this abutment is confined and secured at bottom by a wrought-iron collar, put on when red-hot, so that, in cooling, the contraction tightens and completes the union. The application of this principle of a central abutment being considered novel, it gave rise to much discussion as to its efficacy; accordingly, a series of experiments was made at Messrs. Bramah's (who executed the work) upon models; the result of which was, that this form bore nearly double the weight of a straight bar of the same section. I was induced, by the suggestion of practical men, to increase the substances of the rib beyond what was originally intended; but, from the result of all the tests and experiments, I feel assured that such increase might safely have been spared. Each pair of ribs, forming one span, weighed 33 cwt. 3 qr. 3 lb.; and the whole of the cast-iron work, including columns, gutters, &c., weighed 32 cwt. and 32 lb. Total expense, 706*l.* 7*s.* 11*d.* The area

covered was 3060 ft., equal to full 3s. 6d. per foot, or nearly 18l. per square." (p. 45.)

To render this extract perfectly clear, an engraving would, perhaps, be requisite; but, as there will be very few architects who will not become possessed of the book itself, we feel the less regret at not having time to give one in the present Number.

Art. v. On Terrace Roofs. By Charles Fowler, Hon. Sec.
With one plate.

Mr. Fowler, some years ago, covered a wing of his house used as an office, and which rises only one story above the ground, in the terrace manner.

It is "approached from the landing of the staircase, and serves as a garden, having a covering of gravel and mould of about 9 in. thick, the weight of which is about 820 lb. to the square yard, independent of the additional load of rain-water, and of persons occasionally going upon it. The whole is supported on cast-iron bearers, or ribs, about 3 ft. apart, having a curved rise of 9 in., which gives form to the terrace, and serves to drain it both ways. The covering is composed of three courses of common plain tiles, bedded in fine cement without sand; and in laying them, laths, or small slips of wood, were used, resting on temporary bearers between the iron ribs, the laths being shifted as the work advanced, in the course of about half an hour after being laid. Particular attention is required to bonding the tiles both ways; and they are rubbed down closely upon each other, much in the same manner as a joiner glues a joint. The gutters are formed by setting up the tiles against the parapets, shaping them into a curve, and giving a slight declivity towards the outlet; and, as there are no joints or drips to be provided for, all this is effected with great ease and compactness. In this case, a bed of coarse gravel was laid underneath the garden mould, that the water might percolate through it, and by which means is avoided the having of any greater quantity of moisture than is compatible with the proper state of the plants. A lath and plaster ceiling is formed underneath, on joists attached to the lower flange of the iron ribs. Some leaks have occurred in this roof, in consequence of unequal settlement in the walls; and, in every instance, they have been effectually stopped, with great ease, by raking out and enlarging the crack, and then running in cement." (p. 48.)

"The roofs of the two taverns on the Hungerford Market were covered by Mr. Fowler in this manner, and have succeeded perfectly. The tiles form a surface agreeable for walking upon, both as to texture, and from being non-conductors of heat, which is another advantage over lead, both as regards the terrace and the rooms underneath; also the friction of so many persons moving about has produced but little wear on the surface of the tiles, although they are more particularly liable to that effect at first, from the irregularity of the surface; but, in situations where it may be important to guard against great friction or wear, the tiles might be rendered harder, and more impervious, by means of a few coats of boiled oil and litharge, laid on during hot weather; or the upper course might be formed of glazed tiles."

Where a covering, or roof only, is required, Mr. Fowler considers two courses of tiles sufficient; but, where the roof is liable to be loaded with persons getting upon it, three courses should be used. With regard to expense, "two courses of tiles on iron joists amounted to one third less than covering with 8 lb. of lead on fir joists." "Independently of the consideration of beauty, for the display of which this mode of construction affords

great opportunity, it possesses the powerful recommendations of being incombustible, economical, and durable." (p. 51.)

Art. vi. On Whinstone Construction. By Messrs. Smith of Darnick, N. B. Sewers, Vents, Suspension Bridges, Damp in Foundation Walls, Hollow Walls.

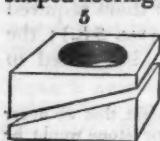
This is an exceedingly instructive article, and most valuable for countries like Wales and the Highlands of Scotland, where bridges are much in demand for crossing the numerous streams which are always found in hilly districts. Arches, of 70 ft. or 80 ft. span, have been built by Messrs. Smith, entirely of whinstone, and only the facing-stones dressed. The stones composing the arch of a bridge over the Ettrick at False Hope, the span of which is 76 ft. 4 in., and the rise about 18 ft., "might average about 2 square feet of area; and many of them required 3 breadths to make up the depth of the arch (viz. 3 ft.); the average thickness of the stones might be $3\frac{1}{2}$ in., but varied in thickness from $1\frac{1}{2}$ in. to 6 in.

"The beds of them being generally so much off the straight, that we never attempted to lay them in any thing like regular courses, one stone would be laid at the side of another three times its thickness; and sometimes there would be as much difference in the same stone, which, in consequence, had to be made up with shivers, to prepare for the bed of the next stone. We were at a good deal of pains in laying the stones as close as possible, and in crossing the bond to make the work firm; but we never attempted to dress the stones straight upon the beds. What we have found most annoying in the building of rubble arches is, the slowness of the setting, or drying, of the mortar, which always causes much delay before the work is sufficiently firm for the striking of the centre; as, until the mortar is able to bear a good deal of resistance, the arch is extremely supple, and easily bent out of its proper curve. Whereas, in the hewn stone arch, the stones being mathematically fitted to one another, its dependence upon the mortar is very little, and it is therefore not easily put out of its proper curve, though the pressure should be unequal; but, in the rubble arch, the balancing must be particularly attended to, or it is sure to go out of its proper curve. The False Hope bridge stood five weeks before the timber was struck, and it kept its curve remarkably well. Were it not for the expense, Roman cement would be the best mortar for large rubble arches; and, in many situations, even this would be far cheaper than hewn stone, as with such a cement almost any kind of stone might be worked into an arch, or even the refuse of a slate quarry might be used in an arch of almost any extent. Most of the failures in the building of arches, which have fallen within our notice, have arisen from not balancing them properly, or from striking the centres too soon." (p. 55.)

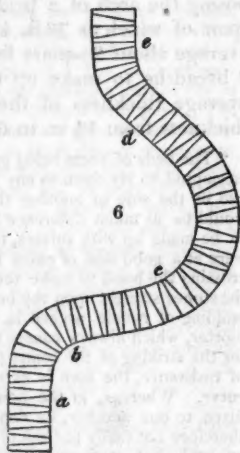
Circular Flues. — Messrs. Smith lined all the vents (the Scotch term for flues) at Abbotsford with flues (the Scotch term for tubes) made partly of fine clay, and partly of common clay. "They were made in pieces about 1 ft. in length, circular, and varying from 15 in. to 10 in. diameter, and about 2 in. thick: they were all made a little off the square at one end, to favour the heads in the flues." When the flues were carried along straight, the beveled ends were put together, and the straight ends together; and when a turn was to be formed, the beveled ends

were so placed as to form the inclination required. They made excellent flues, and were easily swept. They were executed in 1822, and were the first of the kind used in Scotland. (p. 58.)

Shortly after the publication of Mr. Hiort's book on Circular Flues, a lecture was delivered on them by Dr. Birkbeck, which we attended, and published the following note on the subject in the *Gard. Mag.*, vol. iv. for 1828, p. 160:—"By the use of wedge-shaped sections of cylinders, the circular flue may be built in every possible direction, and so as to form in every case a cylindrical tunnel, which may be freed from soot in the most perfect manner, by machinery, without the aid of climbing boys. In order to have a clear idea how the flue is built,



the reader has only to imagine wedge-shaped flooring tiles, with circular holes in them (*fig. 5*). If a flue, tunnel, or drain under ground is to be built in a straight or perpendicular direction, the thin and the thick edges of the wedges, or tiles, are laid against each other alternately (*fig. 6. a*); if the flue or drain is to be turned to one side, the thin edges are laid all on one side (*b*); and if the curve is to be very gentle, or to be serpentine, the thick and the thin edges are used together, or alternately, as may be required to produce the line of direction proposed (*c d e*)."



Damp in Foundations of Walls.—"We have tried a very simple plan in small cottages in damp situations, which we found very effective. We built all the parts of the wall under the surface of the ground quite dry, and did not use any mortar till clear of the earth. This cut off the communication with the damp ground below, and left the walls quite dry above. This plan can only be adopted in small houses, as it would weaken the walls to found them dry in large buildings. We have often thought that it would be a good plan, in building a house upon a clay or tilly foundation, to take out the earth over the whole site of the building, and a few feet beyond the outer walls, to the depth of 1½ ft. or 2 ft. below the intended foundations of the walls, and fill up this space entirely with water gravel, or small stones, which would thus make a kind of artificial subsoil, which, after being firmly beaten, would be ready to receive the foundations of all the walls of the house, which might be formed in the usual way, and would, we think, require nothing more to prevent the rising of the damp. This, in many situations, could only be a very small expense; and we have little doubt, from what we have seen, that it would be effectual, as every wall would be completely drained.

Hollow Walls.—In a wing, which we built at Pavilion, in this neighbourhood, in the year 1811, for Lord Somerville, we built the walls hollow within.

The whole thickness was 22 in.; 10 in. on each side, with an open space in the heart of 2 in. They had a range of bonds laid between the outer and inner part in every course of 2 ft., which was the height of the boxes used; and the bonds were about the same distance apart. The walls were mostly two stories high, and were all built of common whinstone rubble: they are standing as straight as when they were built; but, as they were all lathed inside, it was not proved whether or not such walls would have done for outer walls without lath." (p. 60.)

The mode of building such walls is detailed in the *Encyclopædia of Cottage Architecture*, p. 640. fig. 1221. and 1222.; the two figures exhibiting a view and section of the gauge-box used for keeping the vacuity of uniform width.

Art. VII. Particulars of some Experiments made by M. J. Brunel, Esq., C. E. and F.R.S., &c. &c., on the Mode of binding Brick Construction. With one plate.

The object of Mr. Brunel may be described as being to produce a beam of brickwork for the purpose of covering wide openings, instead of wooden beams or brick arches. Every carpenter knows that the strength of a beam or a truss resolves itself into two elements, ties and struts; or the hard part, which resists a crushing force; and the tough part, which resists a drawing or tearing force. Now, in a beam of brickwork alone, the crushing power is amply supplied by the bricks; but there is nothing to furnish tenacity or resistance to the drawing or tearing power, but the adhesion supplied by the mortar or cement. To supply this drawing or tying power, hoop iron was introduced among the brickwork, in pieces of the length of the beam. An elevation is given of this beam, which is 25 ft. in length; and a section, which shows that 12 iron ties were used, each 1½ in. in width, and one sixteenth in thickness.

"The structure was built in October, 1835. The two extremities of it rested upon blockings 12 in. square: the whole mass, consisting of 184 cubic feet, weighed 18,400 lb. The first experiments upon it were begun in December following, hardly two months after its completion. The stress upon the ties was not only that which resulted from the load raised upon it, but that, also, which resulted from its own specific gravity." (p. 62.)

After a variety of experiments by loading this beam with weights, the following conclusion is drawn:—

"It is evident, that, by means of very small substances, operating as ties, or bonds, even the mere fibres of wood, a piece of masonry may be constituted into a substantial mass, or great beam, whereon the superstructures may further be assisted by a few of the same ties with very great advantage; whereas large scantling is found invariably to shrink from its original dimension, and cannot, therefore, efficiently operate as a tie; nor can any bar of iron of 1 in. square, which presents only 4 in. surface, be adequate to sixteen slips, that present a surface of 32 in." (p. 64.)

Art. VIII. Description of the Pavilion erected at Edinburgh for the Festival in honour of Earl Grey, Sep. 1834. By Thomas Hamilton, Esq. With a plate.

An instructive article, rendered clear by a plate. Sitting-room was required for 2600 persons, exclusive of room for waiters and other attendants; and this was obtained within a fortnight's notice, in a building 101 ft. square, at a total expense of about 1400*l*. The architect states that, if sufficient time had been allowed, the expense would probably not have been half as much.

ANTIQUITIES.

Under this and the following head of literature, we can only spare room at present to give the titles of the articles.

- Art. I. On the Polychromy of Greek Architecture, from the German of K  gler. By W. R. Hamilton, Esq. With a coloured plate. Preliminary Observations; Introduction; Testimonials of Ancient Writers; Remains of Colour in Ancient Monuments; Remains of Colour in the Monuments of Attica; System of Polychromy; List of Writers on the Subject.
- Art. II. Account of the Remains of the City of Anni, in Armenia, extracted from the Journal of W. J. Hamilton, Esq.
- Art. III. On the newly discovered Crypt at York Minster. By P. F. Robinson, V. P.

LITERATURE.

- Art. I. On the Benefits resulting to the Manufactures of a Country from a well-directed Cultivation of Architecture, and of the Art of Design. By J. B. Papworth, V. P.
- Art. II. Some Particulars relating to Manuscripts of Vitruvius preserved in various European Libraries. By Thomas Leverton Donaldson, Hon. Sec., Corresponding Member of the Institute of France.
- Art. III. W. Murray, Esq., Architect, Dublin. Some Particulars relative to the District Lunatic Asylums established in Ireland under the Commissioners for general Control.
- Art. IV. A folded Plate of the Autograph Signatures of the Honorary and Corresponding Members of the Institute.

ART. II. *Transactions of the Institution of Civil Engineers.* 4to. Vol. I. London, John Weale, 57. High Holborn.

THIS is an admirable work, containing a large mass of original and practical information, accompanied, in many cases, by scientific explanations. We observe by the list of subscribers that it contains the names of almost as many architects as engineers; which we are exceedingly glad to see, because no architect is worthy of public confidence who has not a thorough knowledge of the principal problems, mechanical, hydrostatical, and chemical, on which the science of engineering depends. For this

reason, we have no doubt that, in due time, no person will be authorised to practice, either as an architect or an engineer, who has not been examined by some public college or institution; in the same way as medical men now are by the College of Surgeons. But more of this on some future occasion.

The volume before us commences with an introduction, in which a general view is taken of engineering, and those who practised that art, from the time of Louis XIV., until the granting of the charter of the Institution of Civil Engineers, in 1828. This introduction is most judiciously written; and we are pleased to find in it evidence of that masterly character of mind which measures the importance of every art, relatively to society, by its influence on human civilisation generally. There cannot be a finer subject for reflection, than the influence of civil engineering on the face of nature and the progress of society; and, perhaps, there is no profession in the world so well adapted for expanding the mind as that of civil engineering; and, certainly, no art but that of printing is so powerfully calculated to promote the cause of society. A man may excel in any of the fine arts without ever looking beyond them; and the same thing may be said with regard to proficiency in most of the useful arts, from agriculture upwards. A man may be a great warrior, and only think of conquering mankind by force of arms; a great divine, and only think of converting them to his particular creed: but it is difficult to conceive a man, like Telford, uniting all parts of the country by means of improved roads; or, like Fulton, projecting canals for the whole of North America; without having his mind impressed with the ultimate effect of such improvements, in raising and equalising the enjoyments of the human race.

We have received this work too late in the month to read more than the introduction, and glance at the table of contents and the plates; but we have seen quite enough to enable us to recommend it with the greatest confidence to both engineers and architects. We shall hereafter have a remark or two to make on the taste of some of the designs, particularly the bridges.

ART. III. *An Essay on the Nature, the End, and the Means of Imitation in the Fine Arts. Translated from the French of M. Quatremère de Quincy.* By J. C. Kent. London; Smith, Elder, and Co., Cornhill.

THIS work, which has been translated by Mr. Kent at our request, contains what appears to us by far the most satisfactory theory of the fine arts that has ever been published. The author, M. Quatremère de Quincy, is well known to architects by his *Architectural Dictionary*, by far the most philosophical work

of the kind that we know of. The *Essay on Imitation* we have repeatedly recommended in this Magazine, and more especially in the *Gardener's Magazine*; and we cannot better introduce it here, than by the following extract from the translator's preface:—

"A want, acknowledged by every one, is here supplied. An all-comprehensive and universal theory is now, for the first time, unfolded, as a sure guide and instructor where to find the secrets of, and how best to wield, the spells of art in moulding its creations; and a standard of true taste and right criticism is set up to try those creations, and to unlock whatever art has, in its works, of most noble, pure, and elevating. The original of this small volume, the result of years of thought, was published at Paris in the year 1823, but appears to have hitherto remained almost unknown on this side the Channel."

The best thanks of the public are due to Mr. Kent for having removed the chief obstacle to the dissemination of the work in this country; and we feel satisfied that the fruits which it will produce, by the improvement of the public taste, will afford him a heartfelt satisfaction for the task which he has undertaken. Well may he say of the *Essay*, that he "feels proud of being the channel through which it reaches the British public." (Preface, p. xi.)

To attempt at giving any analysis of the work in this Magazine is out of the question. The work could not be abridged so as to be properly understood; and, indeed, it will not be understood by any one who has not a metaphysical turn of mind, and who will not apply himself to it with the utmost attention. We consider ourselves singularly fortunate in having procured a copy of the original work, as soon as it was to be obtained in this country; because it will enable us to lay down a theory of landscape-gardening founded on principles which will endure in all time; a task that has never yet been attempted, the writers on this art having hitherto been chiefly occupied with one particular style.

We conclude by recommending the *Essay on Imitation* to every architect who has any pretensions to being a thinking man, and to every man of taste who has a library.

ART. IV. *Literary Notices.*

THE Domestic Vitruvius, by P. F. Robinson, Esq., containing numerous designs of mansions erected under Mr. Robinson's superintendence, is in a forward state.

A Letter to Lord Viscount Duncannon on the new Houses of Parliament, containing plans, and a perspective view of Mr. Hopper's design, is nearly ready.

Specifications for Practical Architecture, in one vol. 8vo, by Alfred Bartholemew, Architect, is in the press, and very nearly ready.

MISCELLANEOUS INTELLIGENCE.

ART. I. *Professional Precedents.*

UNDER this head we mean to place models and precedents, for specifications, descriptions, estimates, reports, suggestions, data, desiderata, &c., as may be kindly furnished to us by contributors; reserving to ourselves the power of selection.

Churches and Chapels.— Suggestions from the Incorporated Society for promoting the Enlargement, Building, and Repairing of Churches and Chapels; for the consideration of persons engaged in such undertakings.

Site. Central, but with regard to population rather than space; dry; rather elevated, but not on a high or steep hill; not near nuisances, such as steam-engines, shafts of mines, noisy trades, or offensive manufactories; accessible by foot and carriage-ways, but not to be so near to principal thoroughfares, as to subject the service of the church to the danger of being incommoded by noise.

Foundation. Adequate to the height and size of the structure; to be surrounded, if requisite, by good covered drains; no graves within the walls, unless they are vaulted, nor any graves or access to the vaults within 20 ft. of the outside; foundation to be at least 1 ft. lower than any grave near it; and, if the soil wants firmness, the walls may often be better secured from partial settlements by spreading the footing on each side, than by deepening the foundation, or resorting to more expensive works.

Area. It is suggested, that it would tend much to the preservation of churches, and render them more dry, if a paved open area, not less than 18 in. wide, was made round them, and sunk 6 in. or 8 in. below the level of the floor of the church, with a drain from the area to carry off the water: this observation is applicable to old churches as well as new ones.

Basement. Some churches and chapels are rendered cheaper, drier, and more commodious, by good vaults under them, for coals for the use of the poor, fire-engines, or the like, and for stoves for warming the interior; others, by apartments for clerk, sexton, &c. The distance between the joists of the ground floor should never exceed 12 in.

Walls. Thickness to be well proportioned to height and incumbent weight, &c. Durability to be regarded more than beauty, and not to be less than 24 ft. high, when galleries are to be erected, which should always have horizontal ties from the pillars to the walls.

When cased with stone, the wall ought to be thicker than is requisite if of brick only, because the stone, although it adds to the beauty, increases the weight without proportionally increasing the strength, as the two materials do not settle equally together.

Roof. Strength and durability to be most regarded. No roof to be constructed without tie-beams, otherwise the rafters, not being confined at the feet, have a tendency to spread and thrust out the walls.

If the expense of lead, which is most durable, cannot be afforded, the next best covering is slate.

Slates to be laid upon battens rather than boards, and to be rendered inside; boards being liable to rot for want of air.

Gutters. To be most carefully constructed to carry off the rain and snow into the perpendicular pipes, which are cheapest and best of cast iron, cylindrical, and placed 1 in. or 2 in. at least from the wall, so as to admit air and keep it dry.

Dripping eaves, projecting very far, should not supersede the necessity of gutters and pipes, even in very sheltered situations; but in exposed places, eaves, gutters, and rain-water pipes will be absolutely necessary, to prevent the wet being driven against the walls, and thus rendering the building damp.

Gutters may be made of cast iron; but, unless skilfully cast, they will not preserve their level.

Outlets should be provided in parapets to carry off the overflowing occasioned by rapid thaws or otherwise, and also waste pipes in the cistern heads of the rain-water pipes.

The drains on the roof should be protected by coverings, as it prevents the melting snow from congealing in the gutter, and thus obstructing the water-course.

Easy access to the gutters should be provided by dormer-doors and boarded gangways within the roof, for the convenience of cleansing them in times of snow, or whenever necessary.

Chimneys. If any, the utmost care should be taken to render them safe from fire. They may be concealed in pinnacles.

Tower. The vestibule and staircase may be placed in the tower, so as to leave the whole church available for sittings.

Floor. To sittings, wood or brick; to gangways, brick or stone; if not undervaulted, it may be freed from damp by brick rubble, flints or ashes, or furnace slack, laid to the depth of 12 in. or 18 in. under the floor. Allowance should also be made for the future rise of the surrounding burying-ground; the floors of many churches, originally above ground, being at this day many feet below the surface, and thereby become damp and unwholesome.

Windows. Ought not to resemble modern sashes; but, whether Grecian or Gothic, the glass should be in small panes, and not costly; not opening like casements, but falling inwards and downwards from near the top, or outwards from the top, or hung on horizontal pivots.

Where lead-lights are adopted, copper bands to tie them to the saddle-bars are preferable to lead, being less liable to stretch and become loose by the action of the wind.

The very unsightly appearance often occasioned by the wet streaming down the window-backs, may be prevented by fixing a small copper gutter at the bottom of each lead-light, to receive the moisture produced by condensation, with copper tubes to convey the same to the outside of the building. This has also a tendency to keep the building dry, and to preserve it from decay.

Ventilation. Cannot be completely effected by windows alone, without incommoding the congregation. Fresh air may be introduced from without, and conveyed through pipes carried under the floor into the body of the church, at convenient apertures; and the foul air may be expelled at or near the roof, either by horizontal or perpendicular channels or tubes. The horizontal are used in the best barrack infirmaries.

Apertures in the ceiling may also be made to open and close by means of luffer-boards.

All ventilation provided in the original construction of the building to be carefully preserved and kept open.

All doors to be opened for one hour before service and one hour after, except the winter evening service, and also except where warm air is used during the time of its being used in winter.

All windows, casements, &c., to be set open for some hours every fine day, both in winter and summer.

Warmth. Is best provided by introducing warm air through the floor from chambers of air placed in the vaults under it, which are heated by means of stoves or furnaces, and the heat, whether from a stove or otherwise, ought to be introduced near the door, whereby the heat will be carried into the church by the draft from the door.

Voice. Echo and circulation of sound to be avoided, therefore stucco on batten, domes and coved ceilings (except of the waggon form), to be avoided; so also circular walls, except only at the back of the preacher and reader. Ceilings of wood preferable to plaster: all woodwork is favourable to the voice.

Accommodation, internal. The most favourable position for the minister is

near an end wall, or in a semicircular recess under a half dome. The congregation should all see as well as hear him; therefore no square, or round, or double pews should be allowed, and as few pews as may be. The rest of the seats, open benches with backs. A narrow shelf fixed behind the back-rail will serve at once to strengthen it and to support the prayer-book; under the shelf may be placed pegs, or other conveniences for great coats and cloaks, sticks and umbrellas; about half-way under the seats may be fixed a shelf for receiving hats. Kneeling-boards should in all cases be provided.

Seats. The seats should all be placed so as to face the preacher, as far as possible. Pillars of cast iron to support a gallery will give least obstruction to sight and hearing, and are not unfit for chapels, though in large churches they may want grandeur.

Gallery. With a view of wasting as little space as possible, the gallery may be fitted up with benches and back-railings for children and others entitled to the use of free seats. Other free seats may be placed under the galleries; and the eastern end of them, if they lie nearest the pulpit or reading-desk, may afford the best accommodation to the aged and infirm, and the middle of the area may be filled with pews for such as are able to pay rents. In adapting the front seat of a gallery to the use of children, it is advantageous to carry the front wainscot but little higher than the knee, and to surmount it with an open railing, which may be made of cast iron, through which the children may be seen whilst kneeling and sitting. Where the pulpit is placed at the west end, the benches, whether pewed or not, ought to run from E. to W. so that no part of the congregation may turn their backs upon the altar. The pulpit, also, should be placed so as to intercept the view of it as little as possible.

Dimensions, internal. When the congregation is mixed of children and adults, from 17 in. to 20 in. by from 28 in. to 35 in., may be allowed for each sitting, and from 4 to 5 square feet on the floor not too much for every individual, allowing for gangways, communion table, &c. Hence a floor, to accommodate from 1000 to 1200 persons, should contain from 5500 to 6500 square feet, and so in proportion. An average of less than 18 in. by 30 in. has been found insufficient for the accommodation of each person.

Form. The most approved forms are a parallelogram and an octagon; but a polygon or a semi-polygon, or a figure of three straight sides and one polygonal, would bring a large congregation nearer to the preacher than any other, except a circle, which is objectionable, as confounding articulate sounds.

Ornament, internal. Neat, simple, never gaudy or trifling. Woollen linings and cushions are apt to harbour dust, damp, and vermin. Wood is most easily kept clean and dry; yet movable cushions, if wanted, may be allowed.

Ornament, external. Pure and simple, yet venerable, and having the character of a church or chapel: none preferable to the simplest Gothic. The Grecian Doric is also eligible.

Materials. For walls, stone preferable, laid as in the quarry, in large blocks, and all well grouted or doweled; and if brick, the lowest course to be laid dry, and the rest in cement, to the second or third course above ground; or lay a horizontal course of slate in cement quite through the wall, just above the level of the outer ground, in order to prevent the rising of the damp up the wall. For the beams and other timber, iron may often be substituted: but it requires to be carefully examined, for a flaw in the casting has already been the cause of tremendous and most expensive accidents: and wherever the ends of timbers are lodged in the walls, they will be liable to rot, by imbibing the damp, unless they are exposed to a circulation of air.

Vestry. It is most convenient when placed near the reading-desk or pulpit.

Finishing. Wall wainscoting, or wood linings to walls, to be avoided wherever convenient. Wood linings to walls confine the damp, and frequently occasion dry rot. For the same reason, cement skirtings are to be preferred to wood, particularly on the ground floor. Where the linings to the walls are of wood, holes should be perforated under the seats to allow the circulation of air.

ART. II. *Institute of British Architects.*

NOVEMBER 22, 1836.—The Institute of British Architects have, during the last month, held several meetings for the transaction of various important matters connected with the internal management of their affairs, and for the purpose of rendering still more effective their exertions for the promotion of their art. Sir Jeffry Wyattville and Sir Robert Smirke have, with their concurrence, been nominated as Honorary Fellows by contribution, and have been unanimously elected. These gentlemen, with Sir John Soane, and C. R. Cockerell, Esq., make four Academicians who have joined the ranks of their professional brethren for the purpose of furthering the objects of science. Professor Sprenger of Vienna, and Alexander Bruloff of Petersburg, Architect of the Archduke Michael's Palace, have been added to the list of Honorary and Corresponding Members. Mr. William Deane Butler of Dublin has been proposed as Fellow, and Mr. William Richardson of York as Associate.

Institute of British Architects, King Street, Covent Garden.—Session 1836–37. Ordinary Meetings. Chair to be taken at eight o'clock on the following Monday evenings:—December 5. 19.; January 16. 30.; February 13. 27.; March 13.; April 3. 17.; May *1. 15. 29.; June 12. 26.; July 10. 24.

December 5, 1836.—J. B. Papworth, Esq., V. P., in the chair.

Elected. Wm. Deane Butler, Architect, of Dublin, as Fellow.

Presented. The Duke of Serradifaco's work on Sicilian Antiquities, two copies. Description of the House and Museum, the residence of Sir J. Soane; Walker's Vicar's Close at Wells. A Print, being a fac-simile of an old drawing on parchment, by R. Rytte, of the time of Henry VIII. Essay on Imitation in the Fine Arts, by J. C. Kent. Plan and View of a Design for a Group of Villas to be erected at Bowchurch, Isle of Wight. A Print of a View of the proposed Docks, Ca Island, Essex. Portion of a tiled floor from St. James's Palace. Part of a lintel taken out of the Chapel at Whitehall; and printed memorandum of Lectures by Sir J. Soane, delivered at the Royal Academy, in 1835; also of the presentation of the Soane Medal.

Read. A letter from F. Catherwood, Honorary Member at New York, descriptive of the method of removing houses, as practised in that city. A paper by P. F. Robinson, V. P., on Oblique Arches over and under Railways, Viaducts, and Canals; illustrated by diagrams. An Account of some Experiments made on Specimens of Wood, by the late Thomas Tredgold, communicated by B. White, Esq. A description of Baillie's Patent Metallic Hopper Light, explained with models; and also Cowell's invention to facilitate the removal of Sashes from frames for the purpose of cleaning, &c., with a model.

A letter was read from W. R. Hamilton, Esq., stating that, finding that Sarti was about to make casts of most of the Elgin Marbles, he thought that this would increase the difficulty of ascertaining the existence, or not, of any remains of colour upon these monuments; and he had therefore addressed an urgent recommendation to the trustees, that they should have them previously inspected by two sculptors, two chymists, and two painters, who should be solicited to examine officially, and report officially. The trustees, however, declined doing more than to permit the marbles to be inspected, and the secretary communicated that the council of the Institute had appointed a committee to undertake this examination, consisting of the following gentlemen:—Messrs. Angell, Donaldson, Scoles, C. R. Cockerell, R.A., and Dr. W. Faraday; that Messrs. Hamilton and R. Westmacott, R.A., be requested to cooperate with the committee in their investigations; and that the committee do report the result of their examination.

* Annual general meeting of members only. Chair taken at three o'clock P. M. punctually.